

Quantum™ 3080 Surgical Table

TECHNICAL MAINTENANCE MANUAL

(6/30/95)
Rev. 4

764322-670

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The following are personnel (WARNINGS) and equipment (CAUTIONS) safety precautions to be observed when operating or servicing this table. This is a listing of all safety precautions appearing in the text. Carefully read them before proceeding to use or service the table. Observance of these safety precautions will minimize the risk of personal injury or the possible use of improper maintenance methods which may damage the table or render it unsafe. It is important to understand that these precautions are not exhaustive. STERIS could not possibly know, evaluate and advise maintenance departments of all conceivable ways in which maintenance might be done or the possible hazardous consequences of each way.

The operation and maintenance procedures recommended by STERIS are described in this manual. Only these recommended maintenance procedures should be followed.

**WARNING!**

- **TRIPPING HAZARD** – Route power cord to wall receptacle so that it will not be tripped over by personnel in the area.
- **PATIENT INJURY HAZARD** – The following warnings must be observed when operating this table:
 - » **PINCHING HAZARD** – Pinch points are created during extreme tabletop articulation. Carefully review Figure 3-1 before operating the table.
 - » **TIPPING HAZARD** – Do not use table unless floor locks are engaged.
 - » **TIPPING HAZARD** – Do not release floor locks while patient is on table.
 - » **TIPPING HAZARD** – 400 pounds is the maximum safe patient weight on this table for the standard surgical positions. Do not use this table for patients exceeding the 400-pound limit. Contact your local STERIS representative for maximum safe patient weight for any position other than those shown in this publication.
 - » **TIPPING HAZARD** – Obese patients may cause tipping if reversed on this table.
 - » **TIPPING HAZARD** – Possible patient injury and table failure may result from using this table for patient positions other than those shown. Contact your local STERIS representative with respect to positions not shown in this publication.
 - » **FIRE HAZARD** – Table is not to be used in the presence of flammable anesthetics.
- **PERSONAL INJURY HAZARD** – Health care professionals must ensure that patients are positioned and monitored so as to prevent compromising respiration, nerve pathways or circulation.
- **PERSONAL INJURY HAZARD** – When installing any table accessory, check for correct attachment and tighten securely (if appropriate). Do not use worn or damaged accessory. Check installation before using any accessory.
- **PERSONAL INJURY HAZARD** – Unanticipated table movement could cause patient injury. Patient must be secured to the table in accordance with recommended positioning practices.



QUANTUM 3080 - 04 & B4 Tables

Surgical Table

- ⚠ WARNING! (cont'd)**
- **PERSONAL INJURY HAZARD** – Do not immerse any part of foot control in liquids; this could cause unanticipated table movement, leading to patient injury. Always cover control with a plastic bag before using.
 - **INSTABILITY HAZARD** – Possible patient or user injury, as well as table or accessory failure, may result from using STERIS table accessories for other than their stated purpose. . . or from using, on STERIS tables, accessories manufactured and sold by other companies.
 - **TIPPING HAZARD** – Foot Extension accessory or combination Foot Extension and Headrest accessories from previous design STERIS tables should not be used for REVERSE orientation on 3080 tables, as they will create a tipping hazard.
 - **TIPPING HAZARD** – Two or more Uro-Endo/Image Amplification Extension Accessories must not be used together on 3080 table.
 - **TIPPING HAZARD** – During an articulation if the table top sections contact an obstruction, the table may tip. Before lowering either the table top or individual sections, remove possible obstructions. Do not allow leg section, when lowered, to contact the floor.
 - **INSTABILITY HAZARD** – Stabilize table when transferring patient.
 - **INSTABILITY HAZARD** – Leg Transfer Support Accessory must be used only as a leg support; it is not intended to support upper body weight of a patient.
 - **TABLE FAILURE HAZARD** – The safe and reliable operation of this equipment requires regularly scheduled preventive maintenance in addition to the faithful performance of the routine maintenance described in this section. Repairs and adjustments must be performed only by experienced personnel, fully acquainted with this equipment. Maintenance done by inexperienced, unqualified personnel or installation of unauthorized parts could cause personal injury, invalidate the warranty, or result in costly damage.
 - **INFECTION HAZARD** – Rubber or plastic gloves, masks and eye protection must be worn when cleaning to protect against aerosols being reflected from contaminated surfaces.
 - **EXPLOSION HAZARD** – Electrically conductive properties of casters and floor locks must be monitored. Before placing table in use, measure their resistance level according to the requirements of NFPA 99. Perform subsequent routine testing at least once a month.
 - **INJURY HAZARD** – Pinch point areas exist between top sections and saddle casting. Keep hands clear while moving top and turn table off during adjustments.
 - **PINCHING AND TIPPING HAZARD** – Patient injury may result if the operator of this table is not completely familiar with the controls for patient positioning and table operation.
 - **SHOCK HAZARD** – Before proceeding, disconnect all power sources, i.e., wall plug, control battery and (if a battery-operated table) the motor battery positive terminal.



WARNING! (cont'd)

- **CRUSHING HAZARD** – Counterweight weighs approximately 90 lbs. Grip tightly . . . do not drop on table base or toes or fingers.
- **ELECTRIC SHOCK HAZARD**–P25 may arc as connections are made, to initially charge power supply capacitor C30.
- **TABLE FAILURE HAZARD**–Breaking hydraulic fittings will cause associated table section to fall and excessive amounts of fluid may flow from fitting.



CAUTION!

-
- To avoid damage to hand-control cord (and optional foot-control cord) make sure they are clear of any table pinch points.
 - To avoid possible damage to hand control, hang it from side rail (or end rail) of table when not in use.
 - Static electricity can damage microprocessor controls. Indiscriminate probing of circuits or improper connections may result in immediate or delayed electrical failure. If the electronics are to be accessed, use a personal grounding device. Exercise care in all activities involving the electronic circuitry.
 - Isolate the coil and/or pump motor from the control by disconnecting the wires on the motor terminal board, or slip the wires off the solenoid coil.
 - Use only recommended cleaners/disinfectants on STERIS tables. Do not use phenolics which may cause patient skin burns if inadequately rinsed off, or alcohol which does not have sufficient cleaning/disinfecting properties.
 - Cleaning procedures requiring table articulation should be performed only by persons familiar with table operation.
 - Read the label of aerosol can thoroughly and follow all directions and cautions as shown.
 - Do not spray cleaning fluid into electric receptacles and avoid spraying directly on override switches or into clearance space above column. Spray or drippage may settle onto electric circuits inside table causing corrosion and loss of function.
 - Always connect power cord to a properly grounded socket.
 - To prevent rubber bumpers from being cut off, replace base shroud pieces carefully and evenly.
 - When removing raise/lower cartridges it is important to support the raise/lower mechanism.
 - Do not use cloth to wipe inside of valve manifold.
 - Be careful not to damage o-rings and/or cartridge bodies during re-assembly.
 - When reinstalling power supply assembly, be aware of table-lock microswitch wires (blue twisted pair wire numbers 80 and 81; #109, Fig. 9-24B). Handle carefully to avoid breaking solder connections.
 - Handle wire cables carefully, making sure they don't become hung up in other components, and that wires don't pull out of plugs.



- ⚠ CAUTION! (cont'd)**
- Take care when removing and installing cylinders. Make sure cylinder rods remain clean and undamaged. Nicks and/or scratches will eventually cause leakage.
 - Do not remove back section cylinder without supporting back section. Limit switch will be damaged if back section drops too much.
 - Disconnect table from any external AC power source before performing this procedure (resetting voltage switches).
 - Before articulating or making any adjustments to the table, be certain that no electrical or hydraulic hoses are subjected to stress or pinching.
 - Tilt articulation must be activated while adjusting the cylinder rod to release the brake mechanism. Failure to do this will destroy the cylinder.
 - Retaining washer and spring may quickly expel from the valve block.
 - Plunger is equipped with a spring which may expel from the housing upon removal of the plunger housing.
 - Failing to secure section will result in sudden lowering of that section.
 - Before removing the screws entirely, be sure to grasp the lower part of the manifold.
 - During some extreme articulations, the table top may contact the base and/or column shrouds. Take care to avoid positioning the table in such a way as to cause damage to the shrouds.
 - After performing cleaning procedures, insure pads and x-ray tops are completely dry before reinstalling. Moisture trapped between pads and x-ray tops may contribute to equipment damage, such as x-ray top warpage.

IMPORTANT: If table has been stored for longer than four weeks, operate table through all articulations prior to usage.

GENERAL

The product literature included in this section contains factual data relating to the principal descriptive and identifying characteristics of particulars for Quantum 3080 major surgical tables. The literature is informational rather than instructional. It provides and conveys, textually and illustratively, a general concept of the equipment, its purpose, capabilities, limitations and technical specifications.

SPECIAL TOOLS/ MATERIALS

Table 2-1 shows the tools and kits necessary to repair and maintain the Quantum 3080 table. It is important that these tools be on hand before any maintenance procedures are started. Because of the special nature of the table's hydraulic system, keeping the hydraulic hoses and cylinders clean and dust-free is very important.

FEATURE BENEFITS

New return-to-level capability eliminates guesswork and time normally involved in returning the patient to level.

New Akros pads provide a unique pressure management system for the prevention of decubitus ulcers.

One-year warranty confirms STERIS's commitment to quality and responsiveness.

The four-section, radiolucent 75" tabletop has been lengthened to accommodate taller patients with maximum table articulations and complete upper and lower body I.A. coverage.

Table 2-1
Special Tools for 3080 Table Maintenance

Part Number	Tool	Quantity
P-764322-660	Kit, Tool 3080 (04)	1
P-764322-738	• Pressure Gauge, 0-2000 PSI	1
P-764322-739	• 9/16" Deep Socket, 14" Drive	1
P-764322-740	• 7/8" Deep Socket, 1/2" Drive	1
P-764322-743	• 1/2" 70° Offset Open-end Wrench	1
P-764322-744	• 9/16" 70° Offset Open-end Wrench	1
P-764322-745	• 5/8" 70° Offset Open-end Wrench	1
P-764322-746	• 1-1/16" 70° Offset Open-end Wrench	1
P-764322-747	• Protractor	1
P-764322-748	• Hex Head Plug, SAE	1
P-764322-749	• O-ring (1/2" OD x 3/8" ID)	2
P-764322-750	• Cap, FNL	4
P-764322-751	• Plug, FNL	2
P-764322-752	• O-ring (7/16" OD x 5/16" ID)	3
P-90696-061	• Screw, Hex Sockethead, #10-32 x 1-3/4	1
P-764322-952	Allen Wrench - Tamperproof Screws	1
P-764323-811	Protractor, Digital Smart Level	1
P-764324-651	Kit, Tool 3080 Bieri (B4)	1
P-150823-387	• Hose, Size 2-250 mm	1
P-764324-652	• #0202-4-4 Female Pipe Connector	1
P-764324-653	• #G6-PL-S Union #6 to #6	1
P-764324-654	• #BUZ 6-LS-S Plug	2
P-764324-655	• Hex Key Set L Metric	1
P-764324-656	• Socket, 1/2 DR, 24 mm, 12pt Deep	1
P-764324-657	• Wrech Comb. Met., 10 mm Thin, 70° Offset	1
P-764324-658	• Wrech Comb. Met., 13 mm Thin, 70° Offset	1
P-764324-659	• Wrech Comb. Met., 14 mm Thin, 70° Offset	1
P-764324-660	• Wrech Comb. Met., 17 mm Thin, 70° Offset	1
P-764324-661	• Wrech Comb. Met., 19 mm Thin, 70° Offset	1
P-764324-662	• GE6-PL 1/4" NPT-S	1
P-764325-933	Kit, Velcro Adhesive, 1 pt., with Instructions	1
P-755715-499	Stainless Steel Cleaner, Can	1
R-5300-545	Loctite 222, 50cc	1
R-5300-554	Loctite 242, 50cc	1
R-5300-548	Loctite 271, 10cc	1
R-5300-542	Loctite 609, 50cc	1
R-5300-540	Loctite 290, 50cc	1
R-5300-557	Loctite 495, 1 oz	1
P-764322-636	Kit, 3080, Oil, 1 gal.	
P-764326-267	Chevron 680 Oil, 4 oz.	1
P-764322-635	Neptune 7, 4 oz. Tube	1
R-5300-286	Ora Lub Anti-seize	1
R-6400-826	Lubriplate HD-2, 14 oz. Tube	1
R-6200-400	Lint-free Cloth (BAF), Package	1
P-764322-894	Carrying Case	1
P-764319-808	Gray Touch-up Paint (12 oz. spray)	1
Q-150824-612	Gray Touch-up Paint (60cc bottle)	1
R-5300-563	Clear 108 RTV	1
R-5300-006	White 162 RTV	1



QUANTUM 3080 - 04 & B4 Tables

Surgical Table

The new user-friendly remote hand control system is lightweight, removable, fluid-tight, and shock-resistant, providing new easy articulation capabilities from anywhere around the table.

Standard notched STERIS stainless steel siderail will accept most standard STERIS accessories at notched areas. Gravity latches are provided.

Perineal cut-outs in both the tabletop and X-ray top permit full access to patient.

Built-in kidney elevator (manually operated) will rise 4" from tabletop. Can increase table's flex capability.

Quantum's optional foot control allows raise/lower, trendelenburg and lateral tilt positioning capabilities. Foot control is lightweight, splash-resistant and easy to move. Plugs and receptacles are color-keyed to prevent damage from improper insertion.

Head section screws have been recessed into table frame to help prevent damage or bending from hitting with a patient stretcher. Screws have been captured to minimize removal or loss.

Brass inserts prevent binding when inserting or removing head section.

Keyed hand and foot control plug-in clips help prevent the hand control or foot control from being inserted improperly and damaged.

Cord has been recessed into base to help prevent inadvertent removal. A recessed plug-in jack is provided to remove the line cord.

Smooth, stainless steel, streamlined base with fluid-tight, low-profile, telescoping column maximizes surgical and C-arm access and improves cleanability and service access.

Self-compensating floor locks self-adjust to unevenness in O.R. floors to save time and provide stable surgical work surface.

A **400-pound patient articulation capability** accommodates large patients without sacrificing stability.

The **headrest support bars** have been lengthened so that you can extend the length of the table by another three inches. This presents increased upper body I.A. coverage from 28" to 31", as well as allowing accommodation of taller patients.

Flex/reflex positioning allows coordinated movement of the kidney elevator back and seat section; the positioned patient is articulated on the table in one smooth motion. For additional flex, a built-in kidney body elevator can be used to increase the flex capability.

Table is 75" long x 20" wide to accommodate taller patients easily, X-ray top is available to allow X-ray cassettes along full length of the table.

TUV-approved grounding post accepts the appropriate lock connector. Electrical connection of the patient is assured by a conductive strap placed in contact with the patient's skin, and with the tabletop and table frame. Quantum also has ETL and TUV/GS listing and complies with IEC 601-1 standards.

SURGICAL TABLE SPECIFICATION

1. Remote hand control with 2 foot coiled cord (15 feet long when extended), provides following:
 - a. Single command return-to-level function (for RL/SP tables).
 - b. Hand control plugs into color-coded receptacle.
 - c. Has Power On/Off touch pad with an indicator LED.
 - d. Power mode/condition indicator LEDs (AC line, battery and low battery).
2. Table Base is cast iron with textured enamel finish with following:
 - a. Top is enclosed by a two-section, welded stainless steel cover.
 - b. Four conductive swivel casters.
 - c. Three conductive self-compensating floor locks (tripod principle).
 - d. Line-power input plug with protective fuses.
 - e. Manual foot pedal (hydraulic backup).
 - f. Hydraulic pump/motor assembly, power control assembly and control batteries are located within the base.
 - g. Motor batteries and motor charger are located within base.
3. Table has a separate override control system which allows operation of basic table functions and floor lock/unlock function should the primary microprocessor system become inoperative.
4. All table articulations safely perform with up to a 400 pound patient.
5. Both table and X-ray tops have a perineal cut-out in the seat section.
6. The foot section lowers 105° giving a standing or seated surgeon perineal access.
7. Manual kidney elevator that will rise 4" from tabletop.

- e. Floor lock function and actuate touch pads with LED indicators.
- f. Patient orientation touch pads for preprogramming of normal or reverse orientation.
- g. Position function and actuate touch pads for Trendelenburg, Reverse Trendelenburg, height, side tilt, back, leg and simultaneous flex/reflex.

8. Table nominal articulations:
 - a. Height: rise 27" to 44" nominal.
 - b. Lateral Tilt: 18° nominal from horizontal.
 - c. Trendelenburg: 25° nominal from horizontal.
 - d. Reverse Trendelenburg: 25° nominal from horizontal.
 - e. Back Section: up to 55° nominal or down 25° nominal from horizontal.
 - f. Leg Section: up 80° nominal or down 105° nominal from seat section.
 - g. Flex: back down 21° nominal with seat down 25° nominal from horizontal.
 - h. Reflex: back up 29° nominal with seat up 35° nominal from horizontal.
9. Tabletop:
 - a. 20" wide and 75" long, divided into four hinged sections: headrest, back, seat and leg.
 - b. 2" pressure management pads.
 - c. All sections constructed of a radiolucent material.
 - d. A Velcro tape strip on the longitudinal centerline of the tabletop section permitting instant application and removal of mattress pads, even when the pad is reversed.
10. Headrest Extension:
 - a. Headrest support bars are capable of extending the length of the table three (3) additional inches.
 - b. The headrest can be articulated 90° up and 90° down in 15° increments.
11. Cassette may be positioned from either end of table or either side.
12. Table can be manually controlled in case of power failure.
13. Easy-glide swivel casters with automatic self-compensating floor locks.
14. Drain pan retracts fully so leg section can be raised without removing the tray and extend fully for cystoscopy procedures.
15. Foot control assembly for use in conjunction with the hand control (with following):
 - a. Splash-proof constructed of cast-aluminum with a stainless steel guard.
 - b. Has a three foot long coiled cord (14 foot when extended) hospital grade cord and plug.
16. Head/Foot Extension - to provide additional patient support.
17. Headrest Adapter - this will allow use of standard Neuro, Eye and ENT attachments.
18. Radiographic tops complies with the Radiation Control for Health and Safety Act of 10-18-68.



WARNING!



PINCHING HAZARD: Pinch points are created during extreme tabletop articulation. Carefully review Figure 3-1 before operating the table.

PINCH POINT WARNINGS

During extreme tabletop articulation, various possible pinch points exist. These points are identified in Figure 3-1. All personnel involved in tabletop positioning should examine and be aware of these points before operating the table.

INSTALLATION

Note: Patient grounding post (male connector, DIN 42801) provided in accordance with NFPA 99. Female connector for patient grounding not furnished by STERIS.

Important: Battery powered tables should be completely charged prior to initial operation. Charge batteries, as described in Section 8.6 before proceeding. If table is to be placed in

extended storage, make sure batteries are disconnected and check batteries before reconnecting.

3.1 INSTALL POWER CORD

(See Figure 3-2)

1. Place table at desired location.

Note: Omit steps 2 and 3 if table is battery powered.

2. Plug female connector on power cord into male connector on front of table base.

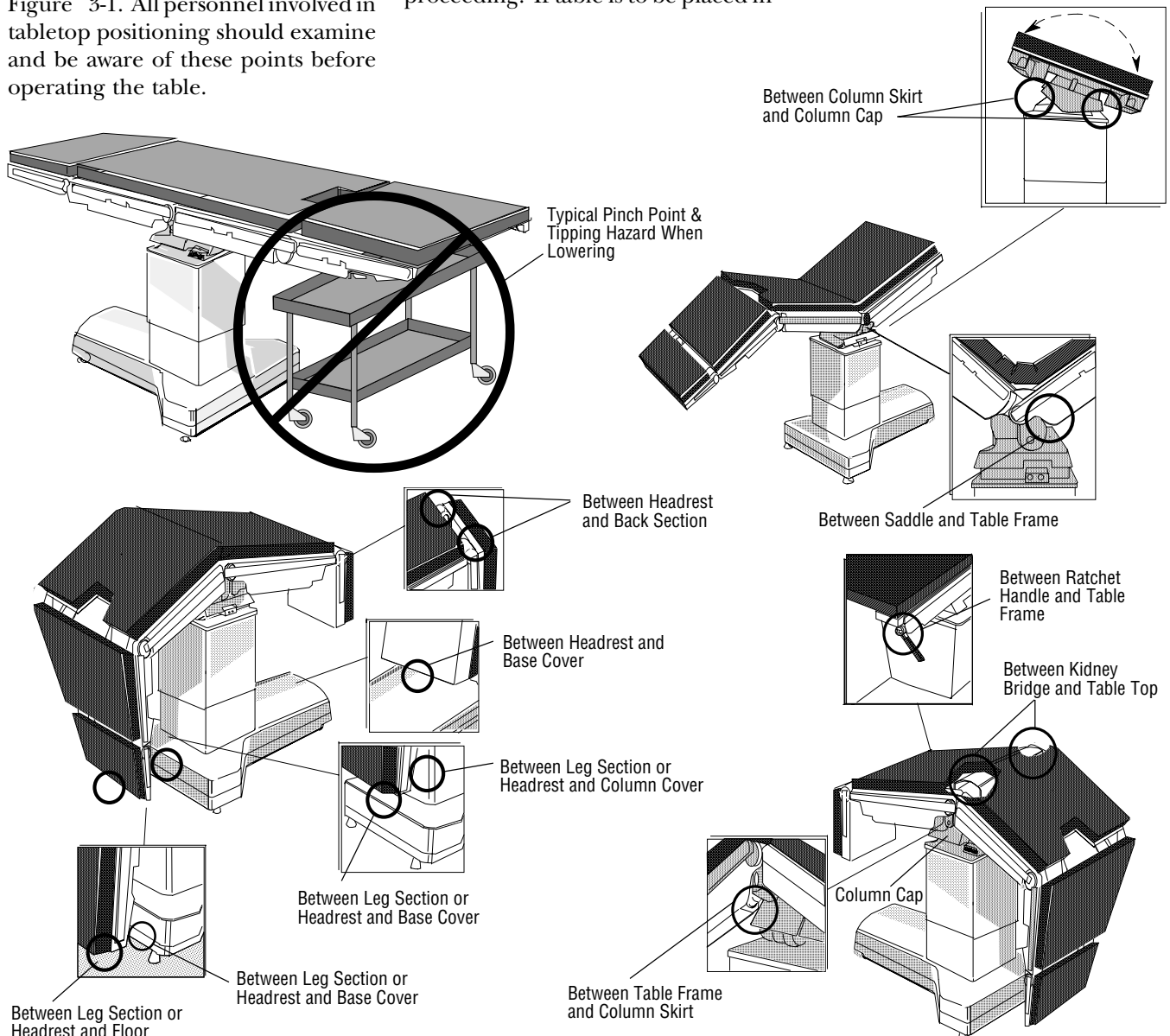


Figure 3-1. Pinch Points



QUANTUM 3080 - 04 & B4 Tables

Surgical Table

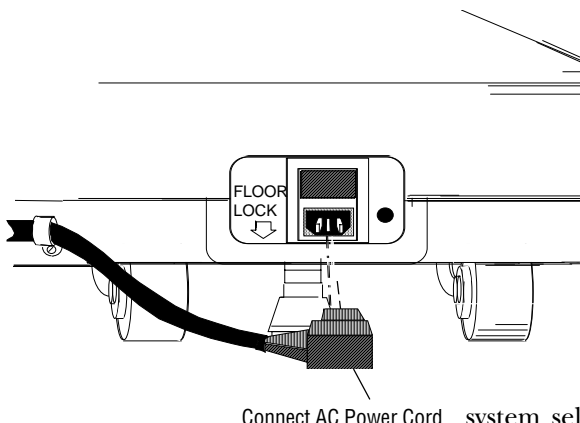


Figure 3-2. Power Cord Connections



WARNING!

TRIPPING HAZARD: Route power cord to wall receptacle so that it will not be tripped over by personnel in the area.

3. Plug three-pronged hospital-grade plug into appropriate wall receptacle, routing cord so that it will not be tripped over.

3.2 INSTALL HAND CONTROL

Refer to Figure 3-3 for identification of hand control functions. When a function is actuated, the green LED for that function lights. Problems are indicated by red LEDs. See Table 3-1, Hand Control Diagnostics, to identify problems indicated by red LED lights.

Note: If the wrong function-selector touch pad is accidentally pressed, press the correct function touch pad to override the incorrect selection.

1. Align red dot on red hand-control



CAUTION!

To avoid damage to hand control, hang it from side rail (or end rail) of table when not in use.

button with red dot on red table receptacle. Push plug into connection (Figure 3-4).

Note: A spring-loaded locking ring locks plug into receptacle. When disconnecting hand control, pull back on locking ring before pulling plug from receptacle.

2. Press the ON touch pad at top of hand control. All LEDs on hand control will light momentarily for a control system self-test. The red UNLOCK LED will continue to flash if floor locks are not engaged.

3. Hang hand control on table side or end rail.

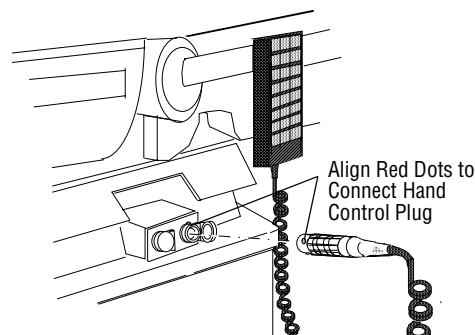
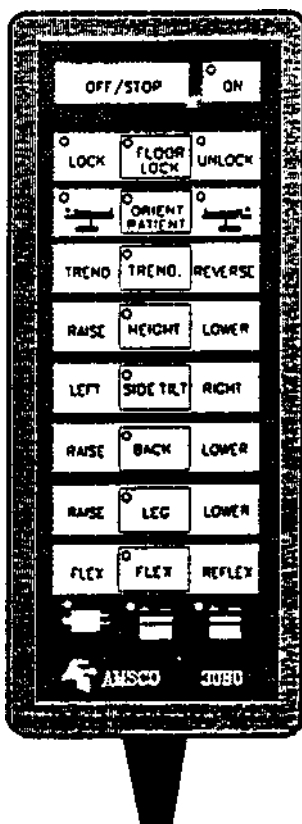


Figure 3-4. Hand Control Connection

3.3 INSTALL OPTIONAL FOOT CONTROL

See Figure 3-9 for identification of foot-control functions. When a function is actuated by a foot-control pedal, the green LED for that function will light on the Pre '92 hand control only.



3080 RC & RL Model - Pre '92



3080 RC, RL/SP Model - Post '92

Figure 3-3. Hand Controls

1. Align red dot on gray foot-control plug with red dot of gray table receptacle.
2. Push plug into connection (see Figure 3-5).

Note: A spring-loaded locking ring locks plug into receptacle. When disconnecting foot control, pull back on locking ring before pulling plug from receptacle.

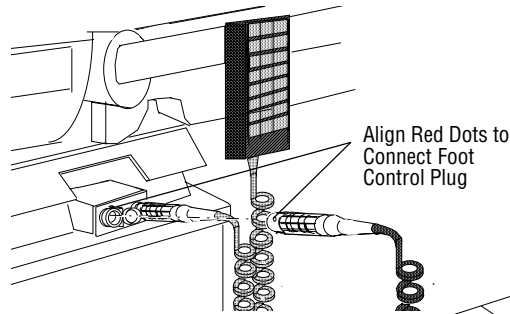


Figure 3-5. Foot Control Connection

3.4 LOCK TABLE IN PLACE

1. Press FLOOR LOCK touch pad (center row of control touch pads) and, **within five seconds**, press the LOCK touch pad adjacent to it. Table is locked in position as floor locks are lowered and casters are raised. Red UNLOCK LED will not stop flashing until floor locks are fully engaged. Table will remain locked (immobile) until UNLOCK function is actuated.
2. Check floor locks to make sure each is snug against the floor.

Note: Tripodal floor locks are self-compensating for floor irregularities of up to 1/4 inch and should not require adjustment. Floor locks should engage simultaneously and table base should rise evenly. Casters should swing freely when table is in LOCKED position (see Figure 3-6).

Note: To unlock table, press FLOOR LOCK touch pad (center row of control touch pads) and, within six seconds, press UNLOCK touch pad adjacent to it on right. Floor locks will retract and table will rest on casters.

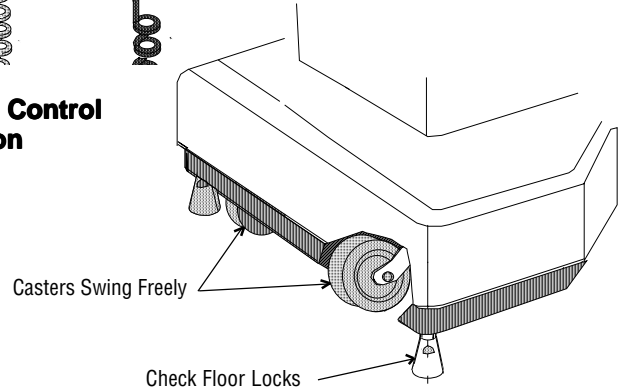


Figure 3-6. Check Floor Locks

TABLE OPERATION



WARNING!



PATIENT INJURY HAZARD - The following warnings must be observed when operating this table:

PINCHING HAZARD - Pinch points are created during extreme tabletop articulation. Carefully review Figure 3-1 before operating the table.

TIPPING HAZARD - Do not use table unless floor locks are engaged.

TIPPING HAZARD - 400 pounds is the maximum safe patient weight on this table for the standard surgical positions. Do not use this table for patients exceeding the 400-pound limit. Contact your local STERIS representative for maximum safe patient weight for any position other than those shown in this publication.

TIPPING HAZARD - Obese patients may cause tipping if reversed on this table.

TIPPING HAZARD - Possible patient injury and table failure may result from using this table for patient positions other than those shown. Contact your local STERIS representative with respect to positions not shown in this publication. Patient safety during an operation is the responsibility of the health-care professional present at that time.

FIRE HAZARD - Table is not to be used in the presence of flammable anesthetics.

3.5 ATTACH HEADREST & ORIENT PATIENT

For maximum patient positioning flexibility, table is designed so that headrest can be attached at either end of the table. In order for control to be operable, patient orientation selector on control should match actual patient orientation on table.

Note: Thumbscrews located under tabletop frame must be loosened before headrest can be attached or removed.



1. Determine desired patient orientation and attach headrest to the appropriate end of the table. Attach headrest as follows (see Figure 3-7).

- a. Insert headrest attachment rods into the bores in the end of table frame.

- b. To secure headrest attachment in place, reach under the tabletop frame and fully tighten the two thumbscrews (one on each side of frame).

2. Verify that POWER is ON and table floor locks are properly engaged.

Note: If the wrong function selection touch pad is accidentally pressed, press the correct function touch pad to override the incorrect selection.

3. Press the ORIENT PATIENT function touch pad then, **within six seconds**, press the actuate touch pad for the desired orientation (as shown by illustration on touch pad, see Figure 3-8).

Control is now set to perform all positioning functions in correct relationship to the patient orientation selected.

Important: When REVERSE patient orientation is selected, the FLEX and REFLEX articulation functions are disabled.

3.6 TABLETOP POSITIONING

The tabletop can be articulated within the limits specified by use of the hand control positioning touch pads or by the optional foot control positioning pedals. If a problem arises and table cannot be articulated by use of the hand or optional foot control, the table can be operated as outlined in Section 3.14, Auxiliary Override Systems. Headrest position and kidney bridge elevation must be adjusted manually.

Note: Battery powered tables should be switched OFF after each procedure to prevent unnecessary battery discharge. If low battery condition is indicated by the hand

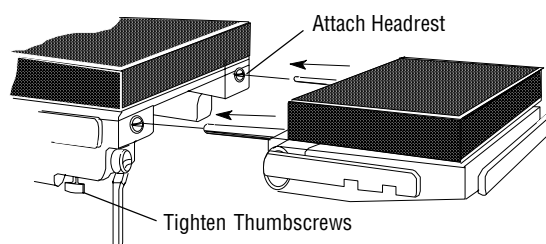


Figure 3-7. Attach Headrest

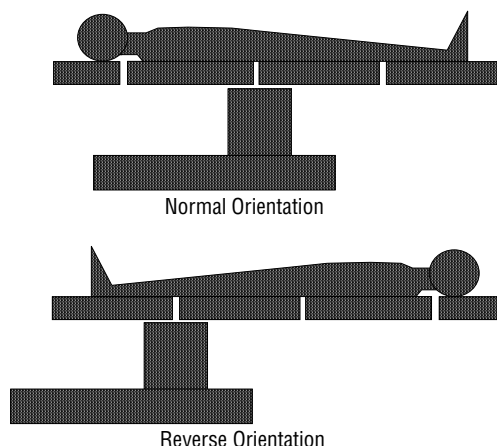


Figure 3-8. Patient Orientation

control, refer to Section 4.6, Battery Charging Procedure.

3.7 HAND CONTROL OPERATION (3080 RC MODELS)

See Figure 3-3. When a function is selected, the green LED for that function lights. See Table 3-1, Hand Control Diagnostics, to identify any problems as indicated by red LEDs on hand control.

The following must be done before any positioning functions are operable:

- Control turned ON
- Floor locks engaged
- Patient orientation on control matches patient orientation on table.

Note: If the wrong function touch pad

is accidentally pressed, press the correct touch pad to override the incorrect selection. The function touch pad must always be pressed before the **actuate** touch pad or no movement will occur.

Important: Table will continue to function normally for **at least 24 hours** after the LOW BATTERY LED illuminates. If LED illuminates during a procedure, complete the procedure and recharge the batteries at the end of the day.

Position tabletop using hand control positioning touch pads as follows:

1. Press the desired **function** touch pad (center row of touch pads), then, **within six seconds** (while function LED is still lit), press the desired **actuate** touch pad adjacent to it.
2. Release the actuate touch pad when desired position has been reached

to automatically stop the tabletop and lock it in position.

3. The range of tabletop movements is as follows:

- **Trendelenburg** - 25 degrees maximum from horizontal
- **Reverse Trendelenburg** - 25 degrees maximum from horizontal
- **Height** - 27 inches minimum to 44 inches maximum
- **Side Tilt** - 18 degrees maximum to right or left of horizontal
- **Back** - Up 55 degrees maximum (80 degrees in REVERSE orientation) or down 25 degrees maximum (105 degrees in REVERSE orientation) from horizontal
- **Leg** - Up 80 degrees maximum (55 degrees in REVERSE orientation) or down 105 degrees maximum (25 degrees in REVERSE orientation) from seat section

Note: FLEX and REFLEX position controls are disabled when in REVERSE patient orientation.

- **Flex** - Back down 21 degrees maximum with seat down 25 degrees maximum from horizontal
- **Reflex** - Back up 29 degrees maximum with seat up 35 degrees maximum from horizontal

3.8 HAND CONTROL OPERATION (3080 RL/SP MODELS)

Pre '92 3080 RL

NOTE: The tabletop can be returned to level by simultaneously pressing both "normal orient" and "reverse orient" (level) buttons. The table will move in gradual, anatomically correct increments until it reaches level.

If the "orient patient" select button is depressed while the green function LED is still on, the table will not return to level. Wait for completion of the patient orient function (maximum 6 seconds) before

simultaneously pressing "normal orient" and "reverse orient" (level) buttons to activate the return to level function.

Post '92 3080 RL/SP

See Figure 3-3. When a function is selected, the green LED for that function will light. See Table 3-1 to identify problems as indicated by red LEDs on hand control.

The following must be done before any positioning functions are operable:

- Control turned ON
- Floor locks engaged
- Patient orientation on control matches patient orientation on table.

NOTE: If the wrong function selection button is accidentally pressed, press the correct function button to override the incorrect selection. Function button MUST be pressed before actuate button or no movement will occur.

IMPORTANT: Table will continue to function normally for at least 24 hours after the LOW BATTERY LED illuminates. If LED illuminates during a procedure, complete the procedure and recharge the batteries at the end of the day (refer to Section 4.6, BATTERY CHARGING PROCEDURES).

Adjust tabletop position using hand control positioning buttons as follows:

1. Press the desired **Floor Lock** or **Orient Patient** function button in the center row of buttons on the hand control and within five seconds (while function LED is still lit), press the desired actuate button adjacent to it.
2. To move the table to the desired position, simply press the desired actuate touchpad.
3. Release the actuate touchpad when desired position has been reached to automatically stop tabletop and lock it in position.
4. The range of tabletop movements are as indicated in Section 3.7.

The tabletop can be returned to level by pressing the **Level** touchpad. The table will move in gradual, anatomically correct increments until it reaches level.

NOTE: If the Level button is depressed while the green Orient Patient function LED is still on, the table will not return to level. Wait for completion of the patient orient function (maximum five seconds) before pressing Level button to activate the return to level function.

3.9 OPTIONAL FOOT CONTROL OPERATION

An optional foot control is available for use in conjunction with the hand control. The following must be completed before any foot control positioning functions are operable:

- Hand control connected
- Control turned ON
- Floor locks engaged
- Patient orientation on control must match patient orientation on table.

Note: If foot control and hand control are actuated simultaneously, hand control has priority.

Position tabletop using foot control positioning pedals (Figure 3-9) as follows:

- **Trendelenburg - 25 degrees maximum from horizontal**

Depress left (TREND) side of TRENDELENBURG pedal (left foot control pedal) to actuate tabletop movement. Release pedal when desired position has been reached to automatically stop tabletop and lock it in position.

- **Reverse Trendelenburg - 25 degrees maximum from horizontal**

Depress right (REVERSE) side of TRENDELENBURG pedal (right foot control pedal) to actuate tabletop movement. Release pedal when desired position has been reached to automatically stop tabletop and lock it in position.

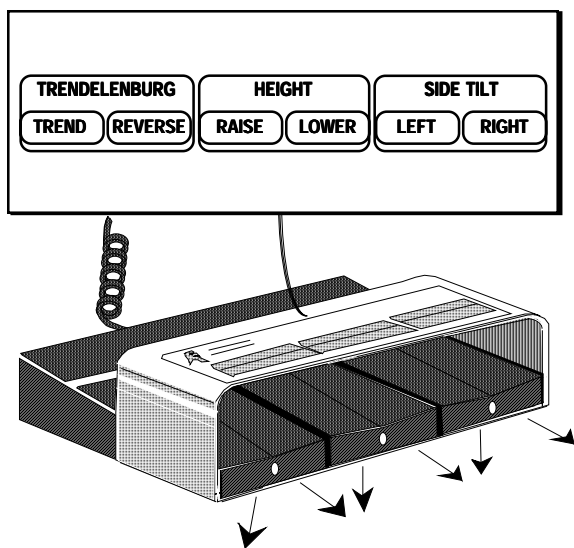


Figure 3-9. Foot Control

- **Raise Height - 44 inches maximum**

Depress left (RAISE) side of HEIGHT pedal (center foot control pedal) to actuate tabletop movement. Release pedal when desired position has been reached to automatically stop tabletop and lock it in position.

- **Lower Height - 27 inches minimum**

Depress right (LOWER) side of HEIGHT pedal (center foot control pedal) to actuate tabletop movement. Release pedal when desired position has been reached to automatically stop tabletop and lock it in position.

- **Side Tilt to Left - 18 degrees maximum from horizontal**

Depress left (LEFT) side of SIDE TILT pedal (right foot control pedal) to actuate tabletop movement. Release pedal when desired position has been reached to automatically stop tabletop and lock it in position.

- **Side Tilt to Right - 18 degrees maximum from horizontal**

Depress right (RIGHT) side of SIDE TILT pedal (right foot control pedal) to actuate tabletop movement. Release pedal when desired position has been reached to automatically stop tabletop and lock it in position.

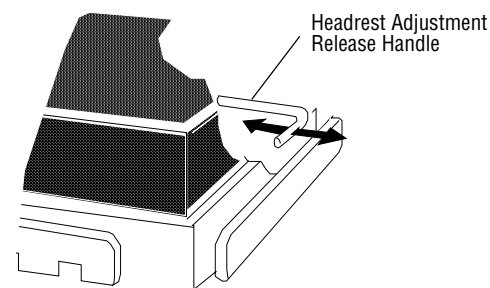


Figure 3-10. Headrest Positioning

3.10 HEADREST POSITIONING

The headrest is manually adjustable 90 degrees upward and 90 degrees downward from horizontal position. Adjust headrest to desired position as follows:

1. Locate spring-loaded release handle under right side of headrest (Figure 3-10), and pull to release.
2. Tilt headrest upward or downward to desired position, let go of release handle, then move headrest slightly until ratchet mechanism locks it into position.

3.11 KIDNEY BRIDGE ELEVATION

Kidney bridge can be manually raised to a maximum height of four inches above the primary tabletop. Adjust kidney bridge as follows (Figure 3-11):

1. Flip down spring-loaded kidney bridge handle (located under left side of back section).
2. Raise kidney bridge as follows:
 - a. Press in grooved end of direction selector switch (located in center of ratchet) to raise kidney bridge when ratchet handle

is operated in a clockwise direction.

- b. Operate ratchet handle in clockwise direction until desired height is reached.



WARNING!



INSTABILITY HAZARD: Possible patient or user injury, as well as table or accessory failure, may result from using STERIS table accessories for other than their stated purpose. . .or from using, on STERIS tables, accessories manufactured and sold by other companies.

3. Lower kidney bridge as follows:

- a. Press in smooth end of direction selector switch to lower kidney bridge when ratchet handle is operated in a counterclockwise direction.
 - b. Operate ratchet handle in counterclockwise direction until desired height is reached.
4. Flip ratchet handle back up into stored position when elevation adjustment is complete.

3.12 PADS AND ACCESSORIES

The conductive rubber mattress pads are backed with Velcro strips

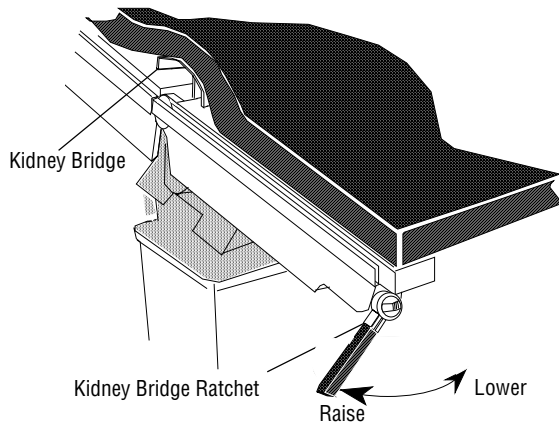


Figure 3-11. Kidney Bridge Adjustment

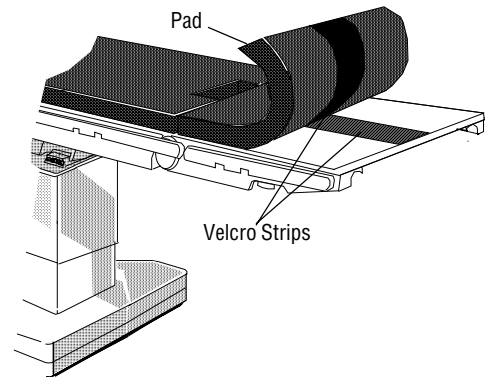


Figure 3-12. Tabletop Pads

which fasten to companion strips on the tabletop (see Figure 3-12). Removable accessories are positioned and secured by clamps or sockets which are attached to (and slide along) the side rails.

3.12.1 Tabletop Pads (Figure 3.12)

1. To install, place pad in position and press Velcro strips together.
2. To remove, "peel" pad away from tabletop.

3.13 OPTIONAL X-RAY TOPS (FIGURES 3-13 AND 3-14)

A four-section X-ray top accessory is available from STERIS for the Series 3080 tables. Each of the top sections has two types of standoff spacers. The shorter spacers rest on the tabletop, while the longer, spring-loaded spacers fit into tabletop mounting holes to secure the sections to the tabletop. The position of the longer spacers must be adjusted for the table which is to receive the X-ray top. Perform the following for each X-ray top section:

1. Loosen the screws holding the spring-loaded spacers to the X-ray

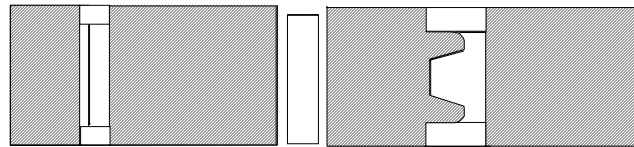


Figure 3-13. X-ray Top Sections

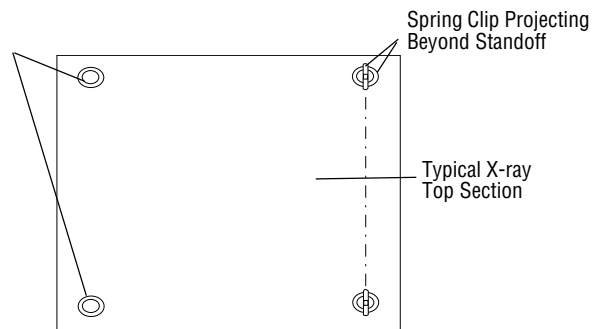


Figure 3-14. X-ray Top Section (Underside)

2. Rotate the spacers so that the spring clips are in line when viewed from beneath the tabletop.
3. Shift the X-ray top section until the mounting screw shaft on one of the spring-loaded spacers is centered in the hole in the X-ray top section. (A 1/16" clearance is provided between each screw shaft and its X-ray mounting hole.)
4. Hold the spacer to prevent it from rotating and tighten the screw.

5. Make sure that the remaining spring-loaded spacer is flat against the tabletop and center it in its tabletop mounting hole, then tighten the screw.
6. Remove and replace the X-ray top section several times; the X-ray top should lift freely.

Note: When removing an X-ray top section, grasp it at the corners where the spring-loaded spacers are located and lift

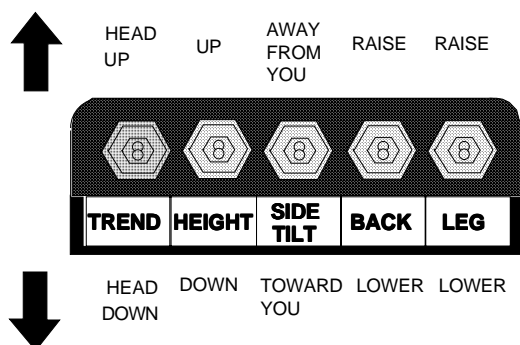


Figure 3-15. Override Switches

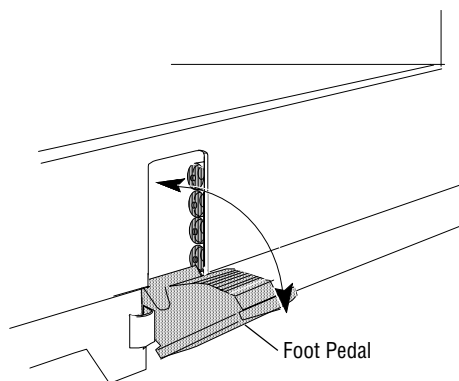


Figure 3-16. Foot Pedal

straight up. Grasping it at the opposite corners will cause the spacers to bind. Repeat the preceding procedure if the spacers bind when section is lifted correctly.

3.14 AUXILIARY OVERRIDE SYSTEMS

See Figure 3-15. If the table hand control is not working, the table is equipped with Auxiliary Override Systems that allow table operation in the event of primary control malfunction. Override systems consist of:

- Tabletop articulation - with electric pump power available, and without electric pump power.
- Floor lock operation

Note: Table control system automatically actuates NORMAL patient orientation and shuts down primary control when override switches are actuated.

3.15 MOVEMENT OF TABLE WITH ELECTRIC PUMP POWER AVAILABLE

A row of toggle switches is located at the top of column on the side opposite the hand control connection (Figure 3-15). These switches are to be used for table movements when electric pump power is available but the remote control is **not working**. Articulate table as follows:

- **Trendelenburg - 25 degrees maximum from horizontal**
Press TREND switch **down** to activate function. Release switch when desired position has been reached to automatically stop tabletop and lock it in position.
- **Reverse Trendelenburg - 25 degrees maximum from horizontal**
Lift TREND switch **up** to activate function. Release switch when desired position has been reached to automatically stop tabletop and lock it in position.
- **Height - 27 inches minimum to 44 inches maximum**
Lift HEIGHT switch **up** to raise tabletop or press **down** to lower tabletop. Release switch when desired position has been reached to automatically stop tabletop and lock it in position.
- **Side Tilt - 18 degrees maximum to right or to left of horizontal**
Lift SIDE TILT switch **up** to tilt tabletop **away from** yourself or press **down** to tilt tabletop **towards** yourself. Release switch when desired position has been reached to automatically stop tabletop and lock it in position.
- **Back - Up 55 degrees maximum or down 25 degrees maximum from horizontal**

Lift BACK switch **up** to raise back section or press **down** to lower back section. Release switch when desired position has been reached to automatically stop tabletop and lock it in position.

- **Leg - Up 80 degrees maximum or down 105 degrees maximum from horizontal**

Lift LEG switch **up** to raise leg section or press **down** to lower leg section. Release switch when desired position has been reached to automatically stop tabletop and lock it in position.

3.16 MOVEMENT OF TABLE WITH NO ELECTRIC PUMP POWER AVAILABLE

The override toggle switches (or hand or foot control selections) are to be used in conjunction with the foot pedal for table movements when no electric pump power is available and the remote control is **not working**.

Articulate table as follows:

1. Flip foot pedal down (Figure 3-16).
2. Operate override toggle switches (or hand or foot control) for the desired movement.
3. Pump foot pedal manually, while still holding toggle switch (or hand or foot control touch pad/pedal)

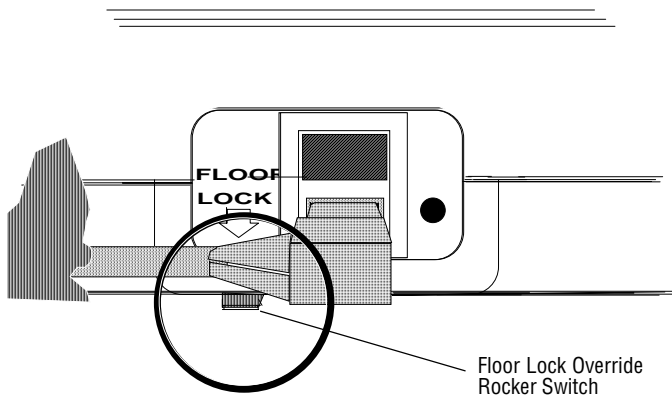


Figure 3-17. Floor Lock Override Switch

in position, until desired degree of movement is obtained.

4. Stop pumping foot pedal and release toggle switch (or hand or foot control touch pad/pedal) to stop movement and lock tabletop in position.

***Note:** Although table positioning can be performed without electric pump power, problem should be corrected as soon as possible. Have qualified service technician repair table before further use.*

3.17 FLOOR LOCK OVERRIDE SYSTEM

A floor lock override switch is located under the table base, inward from the AC power connection (see Figure 3-17). Operate the override system as follows:

- **If electric pump power is available**, move rocker switch **towards you** to activate UNLOCK function; release when floor locks are retracted and table is resting on its casters. To activate LOCK function, move rocker switch **away from you**. Release when table is resting

on floor locks (casters swing freely).

- **If no electric pump power is available**, with one hand, move rocker switch **towards you** to activate UNLOCK function. Hold switch in position and operate the foot pump with your other hand (or have an assistant pump it) until floor locks are retracted and table is resting on its casters. To activate LOCK function, move and hold rocker switch **away from you** and operate foot pump until table is resting on floor locks (casters swing freely).



TABLE 3-1. HAND CONTROL DIAGNOSTICS CHART

Indication	Condition	Corrective Action
Control ON - Green AC LED ON and red BATTERY LED flashing	AC power connected; low or discharged batteries.	Charge batteries.
Control ON - Green BATTERY LED ON and red BATTERY LED flashing.	Battery Operation: Low or discharged batteries - If discharged, control shutdown after 3-1/2 min. when table in use, or after 30 sec. if condition exists at power up.	Charge batteries.
Control ON - Green BATTERY LED (only) ON when table plugged into AC receptacle.	Battery level acceptable; faulty battery charger or power circuit.	Check AC power cord - replace if necessary. Check fuses F1 and F2 - replace if necessary. Reset circuit breaker CB-3. Reset circuit breaker CB-4.
All green and red LEDs flashing.	No communication between table control and hand control.	Check hand control connection. Replace hand control if necessary.
Green "ON" LED flashing.	Optional foot control switch was actuated when hand control switched ON; control logic error disables foot control functions. Faulty foot control - foot control function is disabled.	Turn hand control OFF, then ON to reset controls. Replace foot control.
All LEDs go off.	Hand control unplugged while table control ON - control automatically shuts off after one min. Line Powered Table, AC power off - control automatically shuts off six hours after last function selected. Battery Power Table, floor locks off - control automatically shuts off 30 min. after last function selected. Battery Powered Table, AC power off - control automatically shuts off 24 hours after last function selected.	Reconnect hand control. Reconnect AC power. Activate floor locks. Reconnect AC power.

4.1 GENERAL



WARNING!



TABLE FAILURE HAZARD - The safe and reliable operation of this equipment requires regularly scheduled preventive maintenance in addition to the faithful performance of the routine maintenance described in this section. Repairs and adjustments must be performed only by experienced personnel, fully acquainted with this equipment. Maintenance done by inexperienced, unqualified personnel or installation of unauthorized parts could cause personal injury, invalidate the warranty, or result in costly damage.

Maintenance procedures described in Sections 4.2 through 4.6 should be performed at regular intervals, as indicated. The frequency indicated is the minimum, and should be increased if usage of the table demands. Should a problem occur, refer to Section 6.4, Hydraulic System Troubleshooting or Section 7.3, Electrical System Troubleshooting. Section 4.8 is a sample maintenance record which we suggest the Maintenance Department keep. Such a record proves helpful in ensuring proper maintenance. Quarterly and semi-annual maintenance procedures should be performed only by a qualified technician.

Important: If table is to be placed in extended storage, make sure batteries are disconnected and check batteries before reconnecting. Recharge batteries if stored for more than 6 months.

4.2 CLEANING/DISINFECTING PROCEDURES



CAUTION!



Use only recommended cleaners/disinfectants on AMSCO tables. Do not use phenolics which may cause patient skin burns if inadequately rinsed off, or alcohol which does not have sufficient cleaning/disinfecting properties.

Use the following materials to perform the cleaning procedures described in this section:

- Several clean, dry lint-free cloths
- Can of AMSCO OR/CSS Spray'n' Wipe Cleaner (order number NK351, P-400000-721)
- Container of clean water

Note: When using disinfectants, manufacturer's label recommendations must be followed.

4.2.1 After Each Usage



WARNING!



INFECTION HAZARD - Rubber or plastic gloves, masks and eye protection must be worn when cleaning to protect against aerosols being reflected from contaminated surfaces.

1. Remove gross soil with a disposable cloth and place used cloth in an appropriate biohazardous waste-disposal container.
2. Clean tabletop as follows:



CAUTION!



Cleaning procedures requiring table articulation should be performed only by persons familiar with table operation.

- a. Articulate tabletop so that it is level and at a comfortable working height.
- b. Remove tabletop pads by pulling upward to free them from the Velcro fasteners. Place them on another table or other flat surface.



CAUTION!



Read the label of aerosol can thoroughly and follow all directions and cautions as shown.

- c. Hold cleaner spray can six to eight inches from surface and spray cleaning fluid liberally on top and sides of pads. It is recommended to clean only one pad at a time.
- d. Wipe sprayed surfaces with a clean lint-free cloth, dampened with water to remove cleaning fluid. Dampening cloth minimizes streaking.
- e. Wipe cleaned surfaces again with a clean, damp lint-free cloth to remove any remaining residue.
- f. Repeat steps c, d and e for bottom of pads.



CAUTION!



Do not spray cleaning fluid into electric receptacles and avoid spraying directly on override switches.

- g. Repeat steps c, d and e for table-top surface.
- h. Dry top and bottom of pads.
- i. Place pads on tabletop, align them with tabletop edges and press into place on the Velcro fasteners.
3. Raise table to maximum elevation to access lower surfaces.
4. Clean column skirt, cap, shrouds and entire base surface as follows:
 - a. Hold cleaner spray can six to eight inches from surface and spray cleaning fluid liberally on column skirt, cap and shrouds.
 - b. Wipe sprayed surfaces with a clean lint-free cloth, dampened with water to remove cleaning fluid.
 - c. Wipe cleaned surfaces again with a clean, damp lint-free cloth to remove any remaining residue.
 - d. Repeat steps a, b and c for base surface.
5. Turn control OFF when finished cleaning.



4.2.2 At The End of Each Day

1. Perform all cleaning procedures as outlined in Section 4.2.1.
2. Check table casters for any accumulated debris and clean casters as follows:
 - a. Make sure table floor locks are in LOCKED position with casters raised clear of floor.
 - b. Hold cleaner spray can six to eight inches from caster and spray cleaning fluid liberally on the caster while rotating it.
 - c. Wipe caster with a clean cloth, dampened with water, to remove cleaning fluid and debris.
 - d. Perform steps b and c for all three casters.

4.2.3 Weekly

1. Perform steps 1 through 4 of the Section 4.2.1 cleaning procedure.
2. Perform step 2 of the Section 4.2.2 cleaning procedure.
3. Articulate table through **all** movements and clean all additional surfaces exposed during these articulations as follows:
 - a. Hold cleaner spray can six to eight inches from surface to be cleaned and spray cleaning fluid liberally on surface.
 - b. Wipe sprayed surfaces with a clean lint-free cloth, dampened with water to remove cleaning fluid.
 - c. Wipe cleaned surfaces again with a clean, damp lint-free cloth to remove any remaining residue.
4. Turn control OFF when finished with cleaning procedure.

Note: For periodic polishing, use AMSCO Stainless-Steel Cleaner (P755715-499). Polishing with this cleaner should be performed **after** proper disinfecting as this cleaner is **not** a disinfectant.

4.3 BI-WEEKLY MAINTENANCE

Note: Battery-powered tables should have the batteries charged a **minimum of 38 hours every two weeks** (more often if table usage demands).

1. Charge batteries as outlined in Section 4.6.
2. Operate each table function. Operation should be smooth and quiet. If it is not, have a qualified technician repair the table. Never permit inexperienced, unqualified persons to attempt to make any repairs to the table.

4.4 MONTHLY MAINTENANCE



WARNING!



SHOCK HAZARD - Electrically conductive properties of casters and floor locks must be monitored. Before placing table in use, measure their resistance level according to the requirements of NFPA 99. Perform subsequent routine testing at least once a month.

1. Clean casters and floor locks; check for conductivity.
2. Remove any oil (suture, floor wax, etc.) that may have accumulated on casters.
3. Clean casters with a recommended solution.
4. Lightly lubricate caster bearings with Lubriplate No. R-6400-826 or equivalent.

4.5 "AS NECESSARY" MAINTENANCE

The following repair procedures are to be performed whenever necessary.

Note: If circuit breaker continues to trip, fuse(s) continue to blow, or condition is not corrected by resetting the circuit breaker or replacing the fuse(s),

have a qualified technician check facility power or repair the table.

4.5.1 Resetting Circuit Breakers

Four circuit breakers, CB-1, CB-2, CB-3 and CB-4, protect various table components as follows:

- CB-1 - Power Transformer
- CB-2 - Motor Batteries
- CB-3 - Control Battery Charger
- CB-4 - Motor Battery Charger

Circuit breakers can be reset if tripped by a fault condition.

When tripped, the circuit breaker pops out and is readily detectable. Reset circuit breakers as follows:

1. Lower foot pedal on table base to access the circuit breakers (Figure 4-1).
2. To reset, press in on protective boot covering circuit breaker.
3. Raise foot pedal back into stored position.

4.5.2 Change Fuses

Two replaceable fuses (F1 and F2, 6 amp) are located in a cartridge above the AC input in the table base (Figure 4-2). If one or both of the fuses are blown by a fault condition, replace as follows:

1. Disconnect AC power cord from wall receptacle and table base.
2. To access the fuses, pry cartridge out with a small screwdriver.
3. Remove blown fuse(s) and replace.
4. Push cartridge back into connected position and reconnect AC power cord to table. Plug cord into wall receptacle.

4.6 BATTERY CHARGING PROCEDURE

Line-powered table control batteries are automatically recharged when the

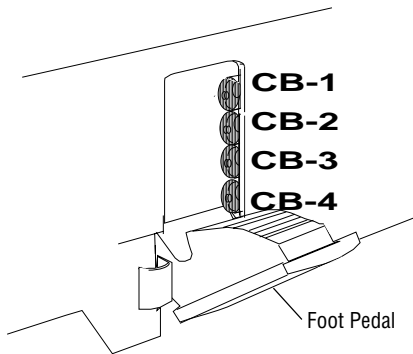


Figure 4-1. Circuit Breakers

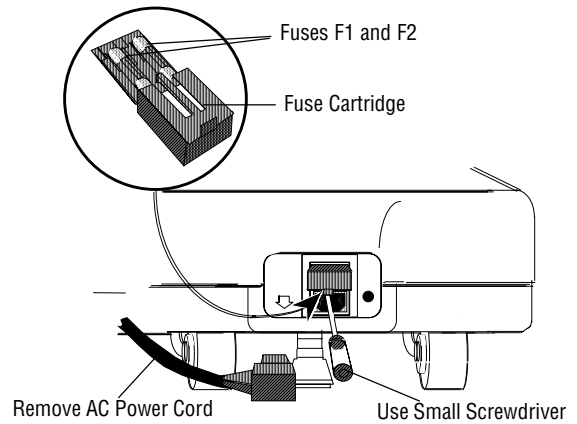


Figure 4-2. Fuse Location

table is being used and do not require additional charging.

Battery-powered table motor and control batteries require recharging on a periodic basis depending on table usage. Low or discharged battery conditions are indicated by LEDs on the hand control. Recharge batteries at the following times:

- When table is first put into service
- Every two weeks when table is in normal service . . . more often if usage demands
- Whenever low-battery indicator LED is on

Note: If batteries will not charge, check for the following:

- F1 and F2 fuses blown - replace if necessary
- AC power cord defective - replace if necessary
- Circuit breaker CB-2, CB-3 or CB-4 tripped - reset if necessary

Recharge batteries as follows:

1. Connect AC power cord to table base and plug into an appropriate AC receptacle.
2. Allow a **minimum of 38 hours** for full battery charge (see Table 4-1).
3. Verify low-battery indicator LED is off and disconnect AC power.

4.7 TABLE LUBRICATION

Lubricate table parts as outlined in Table 4-2.

TABLE 4-1. BATTERY CHARGING

Charging Time	Percent Charge
24 hours	90%
36 hours	95%
48 hours	100%

TABLE 4-2. LUBRICATION SCHEDULE

Lubricant	Table Section	Frequency
Lubriplate HD2	Kidney Bridge Gears	Bi-Annually
ORE LUBE	Seat Section Clevis Pin	Bi-Annually
	Leg Section Clevis Pin	Bi-Annually
	Pivot Pin in Saddle	Whenever Removed
	Floor Lock Pin	Bi-Annually
	Floor Lock Housing	Bi-Annually
Chevron 680	Column Bearings	Annually



QUANTUM 3080 - 04 & B4 Tables

Surgical Table

4.8 PREVENTIVE MAINTENANCE GUIDE

EQUIPMENT: Quantum 3080RC/RL Surgical Tables

This form is to be used as a preventive maintenance record and, along with **Section 4** instructions, as a guide to performing preventive maintenance. (Cross out "o" in column when service is performed. Pages 4-4 and 4-5 should be removed and photocopied to provide a record of regularly scheduled maintenance on the table.)

Note: The Preventive Maintenance Guide is based on bi-monthly inspections.

Service Required: (Inspection Period)	1	2	3	4
Date of Service:				
P/M Performed By:				
1.0 PREPARATION FOR PREVENTIVE MAINTENANCE				
1.1 Discuss equipment operation with department personnel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.2 Examine side rail hardware, tighten as required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.3 Check x-ray tops for tightness of standoffs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.4 Check integrity of cap shroud	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.0 HYDRAULIC SYSTEM				
2.1 Replace oil filter element	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.2 Check hydraulic oil level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.3 Check table base, all hoses, fittings, and components of hydraulic system for evidence of oil leaks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.0 CASTERS AND FLOOR LOCKS				
3.1 Check/clean casters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.2 Lubricate casters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.3 Check floor lock system and adjust if needed per Maintenance Manual	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.4 Verify the presence of all foot pads	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.0 CONTROLS				
4.1 Verify proper operation of all articulations for full motion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.1 Using hand control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.2 Using override function	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.3 Using manual control (foot pump)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.4 Using foot control (if equipped)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.5 Using battery power (if equipped)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.2 check integrity of hand control and cord	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.0 ELECTRICAL CHECKS				
5.1 Check that all circuit boards, connectors, and cable plugs are tight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.8 PREVENTIVE MAINTENANCE GUIDE (continued)

Service Required: (Inspection Period)	1	2	3	4
Date of Service:				
P/M Performed By:				
5.2 Check all cables for damage or fraying	o	o	o	o
5.3 Verify battery charger voltage (28 volts +/- 1 volt)	o		o	
5.4 Verify battery voltage (12 volts per battery)	o		o	
6.0 TABLE RIGIDITY				
6.1 Check tabletop for any horizontal or vertical play		o		o
6.2 Check side tilt mechanism for any play		o		o
6.3 Lubricate column guide rails		o		
7.0 FINAL TEST				
7.1 Secure all covers and shrouds	o	o	o	o
7.2 Reinstall any pads that were removed	o	o	o	o
7.3 Check area to insure removal of all materials used during inspection	o	o	o	o

Key:

A = Adjusted
X = Calibrated
C = Cleaned
D = Damaged

M = Missing
N = New (Replaced)
R = Rebuilt/Repaired
S = Setpoint Verified

T = Tested
L = Lubricated
W = Worn

* = Checked
N/A = Not Applicable

**CAUTION!**

Static electricity can damage microprocessor controls. Indiscriminate probing of circuits or improper connections may result in immediate or delayed electrical failure. If the electronics are to be accessed, use a personal grounding device. Exercise care in all activities involving the electronic circuitry.

Always connect power cord to a properly grounded socket.

5.1 INTRODUCTION

Unless otherwise specified, all table-top sections are designated by their names for a patient in the normal (not reversed) position. Also, all tests requiring table articulation are to be done utilizing the hand control with the LEFT patient orientation button (normal position) actuated, and with the table plugged in and supplied with its specified voltage.

5.2 TEST INSTRUMENTATION REQUIRED

1. Spring scale - P-757290-091.
2. Pressure gauge - P-764322-738.
3. Protractor - P-764322-747.
4. Lint-free cloth - R6200-400.

5.3 HYDRAULIC PUMP RELIEF VALVE (for tables with serial #'s beginning with B4)

NOTE: On some manifolds on the Bieri motor/pump, the relief valve is on the outer edge instead of the inner edge. In this situation, the batteries do not have to be removed.

1. Remove the batteries as outlined in procedure 12.8.
2. Remove the cap from the pressure test port located on the pump pressure port banjo fitting (see Figure 5-1).

3. Install the pressure gauge into the test port using the DIN (European) adapter.
4. Using the override switches, operate a table function to the end of its limit (mechanical stop). With the movement stopped but the pump still running (pump dead-headed), check the relief valve setting by monitoring the gauge. The setting should be 1750 (-25 or + 50) psi.
5. If adjustment is necessary, loosen the locking or jam nut on the adjusting screw. Rotate the adjusting screw until the proper pressure is reached.
6. Remove the pressure gauge and reinsert the test cap.
7. Reinstall the battery.

5.4 HYDRAULIC PUMP RELIEF VALVE (for tables with

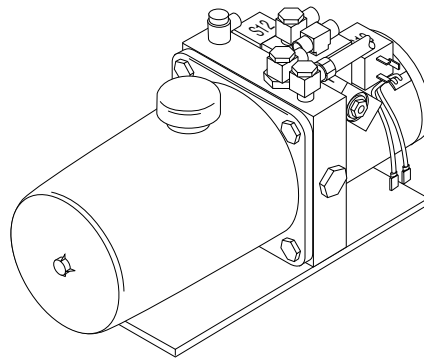


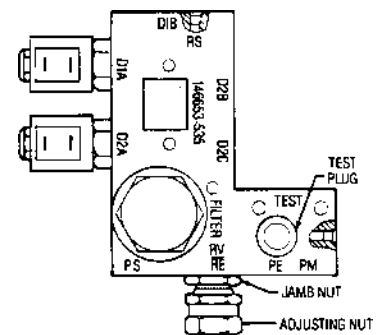
Figure 5.1 - Hydraulic Pump Relief Valve (B4 Tables)

serial #'s beginning with 04)

1. Remove the plug from the pressure test port located on the base manifold block (see Figure 5-1a).
2. Install the pressure gauge into the test port using the SAE adapter.
3. Using the override switches, operate a table function to the end of its limit (mechanical stop). With the movement stopped but the pump

still running (pump dead-headed), check the relief valve setting by monitoring the gauge. The setting should be 1400-1450 psi.

4. If adjustment is necessary, loosen the locking or jam nut on the adjusting screw. Rotate adjusting nut until the proper pressure is reached.
5. Remove the pressure gauge and reinsert the test plug.





and normal throughout. Flip handle into and out of its stowed position several times, be sure detent retains handle in the stowed position.

5.6 TABLE MOBILITY

Note: The following tests are to be done with the floor locks disengaged, with the tabletop horizontal and at maximum elevation, and on a smooth level surface.

1. Move the table forward, backward, left and right. . . three feet minimum in each direction. Be sure the casters operate smoothly and without unusual noise.
2. Move the table longitudinally, with the headrest leading, until the casters are aligned for movement in that direction. Attach a spring scale to end of leg section on table

centerline. Slowly push table straight ahead. Gauge reading should be less than 35 pounds.

3. With table in same alignment, slowly push at right angles to table centerline, at outboard end of left side rail on table headrest. Gauge reading should be less than 20 pounds.

5.7 FLOOR LOCK ASSEMBLY

1. With table on a level floor, engage the floor locks. Check distance between each caster and floor, it should be $1/4 \pm 1/32$ ". If adjustment is necessary, refer to Section 8.15.8.

5.8 TABLE ARTICULATION

1. Articulate each table function

through the entire range and ensure that there are no unusual noises, speed variations or other performance problems. Table speed and range of movement should fall within parameters shown in Table 5-1.

2. Actuate the RAISE function for at least 30 seconds. This causes the pump to develop maximum pressure and the relief valve to be fully employed. There should be no chattering, squealing, or other unusual noises.
3. Refer to Table 5-2 (for electric table) and Table 5-3 (for battery-powered table) and articulate the table through the various functions using the conditions described. (**Note:** If a battery table, the base

TABLE 5-1. TABLE ARTICULATION MOVEMENT

Articulation	Note	Units	Movement	
			Min.	Max
Minimum Elev.	(1)	inches	26.5	27.5
Maximum Elev.	(1)	inches	43.5	44.5
Left Tilt	(2)	degrees	16.0	20.0
Right Tilt	(2)	degrees	16.0	20.0
Trendelenburg	(2,4)	degrees	22.0	27.0
Rev. Trend.	(2,5,6)	degrees	22.0	27.0
Back Up	(2)	degrees	53.0	57.0
Back Down	(2,6)	degrees	-23.0	-27.0
Leg Up	(3)	degrees	79.0	81.0
Leg Down	(3)	degrees	-104.0	-107.0

NOTES:

- (1) From floor to leveled back top surface, no pads
- (2) Referenced to the column stage block
- (3) Referenced to seat section.
- (4) Measure back section angle.
- (5) Measure seat section angle.
- (6) Assure overtravel by actuating override switch.

TABLE 5-2. TEST FUNCTIONS, ELECTRIC TABLE		
AC Cord	Pump	Control
Connected	Electric	Foot Control
Connected	Electric	Override Switches
Disconnected	Manual	Hand Control
Disconnected	Manual	Foot Control
Disconnected	Manual	Override Switches

TABLE 5-3. TEST FUNCTIONS, BATTERY OPERATED TABLE			
AC Cord	Motor Bat.	Pump	Control
Connected	Connected	Electric	Foot Control
Connected	Connected	Electric	Override Switches
Disconnected	Connected	Electric	Foot Control
Disconnected	Connected	Electric	Override Switches
Disconnected	Disconnected	Manual	Hand Control
Disconnected	Disconnected	Manual	Foot Control
Disconnected	Disconnected	Manual	Override Switches

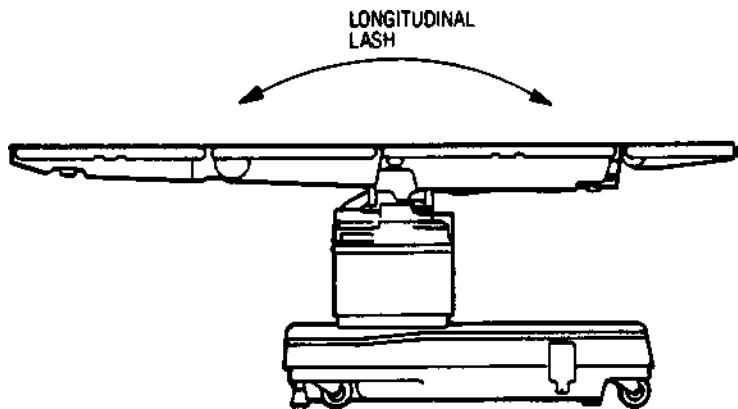


Figure 5-2. Longitudinal Lash

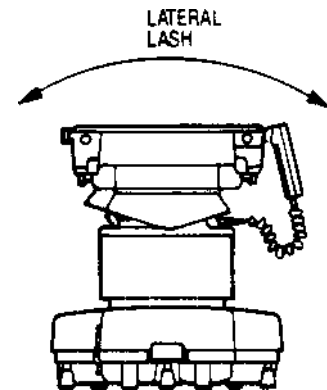


Figure 5-3. Lateral Lash

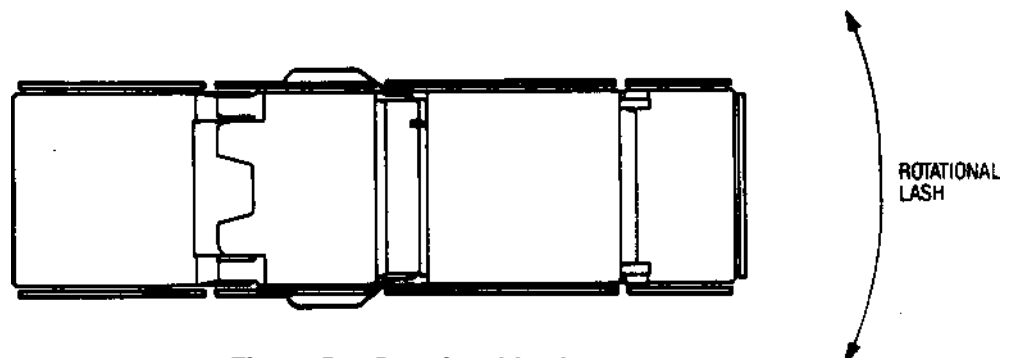


Figure 5-4. Rotational Lash



shroud must be removed for the last three conditions - see Step 4.)

4. Remove table column and base shrouds as described in Section 8.2.
5. Thoroughly examine table assembly for evidence of any hydraulic leaks, mechanical wear, electrical wire abrasion, or any other degradation. Articulate each table function again through the entire range and ensure that there are no unusual noises, speed variations, or other performance problems.

5.9 TABLETOP RAISE/LOWER

1. Lower table to minimum elevation. Check distance from floor to leveled back top surface (without pad). See Table 5-1.
2. Raise table to maximum elevation. Check distance from floor to leveled back top surface (without pad). See Table 5-1.
3. With table at maximum elevation, check limit switch LS5. The switch should be made (roller engages "V" slot) at 1/16" ($\pm 1/32$ ") before table reaches its maximum mechanical stop. If necessary, loosen the switch mounting bracket screws and reposition the switch so that is the case. Repeat Step 2.

Note: The following test is to check tabletop lash which falls into three categories: longitudinal as shown in Figure 5-2, lateral as shown in Figure 5-3, and rotational as shown in Figure 5-4. It is normal for the tabletop to have a certain amount of lash and adjustments should be made only when the lash exceeds the amount specified.

4. Engage floor locks, level tabletop and raise table to maximum elevation.

- a. Longitudinal Lash and Rigidity:** Hang or apply 50 pounds of force on the end of the headrest on the table centerline. Measure the amount of vertical movement at the outboard end

of the left back-section siderail when the 50-pound weight is moved to the end of the leg section on the table centerline. The measurement shall not exceed 1/4".

- b. Lateral Lash and Rigidity:** Hang or apply 50 pounds of force on the left side rail at the seat/back joint. Measure the amount of vertical movement at the outboard end of the left back section when the 50-pound weight is moved to the right side. The measurement shall not exceed 3/32".

- c. Rotational Lash and Rigidity:** Push in the horizontal plane with 50 pounds applied (or 50 pounds force exerted) at right angles to the outboard end of the right leg-section siderail. Measure the amount of movement at the outboard end of the left back-section siderail when the 50 pounds is removed and a push of 50 pounds is applied to the outboard end of the right back-section siderail. The measurement shall not exceed 3/16".

Note: If it is determined that the tabletop has excessive lash, check to be sure the lash is due to the column being out of adjustment. With the column and base shrouds removed, apply an alternating load to the tabletop as outlined above while observing the column for motion between its upper and lower sections. If the lash is due to the column, it should be adjusted as outlined in Step 5.

5. Position tabletop to minimize the load on the column. Attach the headrest to the back section. Actuate the leg section to its full up position. Level the seat section, back section and headrest. See Section 8 for information on lash adjustment.

Note: Take care not to remove all the column lash and inadvertently make the

column too tight, creating excessive loads on the bearings and producing premature bearing failure. It is also possible to produce a sticking condition on the column so that it will not lower after remaining at one height for a period of time.

5.10 TABLETOP TILT

1. Articulate the tabletop in full lateral LEFT TILT and then full lateral RIGHT TILT. Tilt as referenced to the column stage block should be 18 ± 1 degrees.
2. The maximum right and left tilts must be within two degrees of each other. Calculate the difference by subtracting the recorded right tilt angle from the left tilt angle. If necessary, adjust cylinder rod (see Section 12.3.8).

5.11 TABLETOP LIMIT SWITCHES



WARNING!



INJURY HAZARD: Pinch point areas exist between top sections and saddle casting. Keep hands clear while moving top and turn table off during adjustments.

5.11.1 LS3 - SEAT SECTION LIMIT SWITCH

1. With the tabletop sections horizontal, manually depress limit switch LS3, mounted to saddle under seat section. Attempt to actuate FLEX. The pump should turn on, but no motion should occur. Repeat for REVERSE TRENDLENBURG.
2. With the switch released, actuate the same functions. When motion has started, depress the switch. The pump should stay on and motion should stop.

- Starting with the tabletop horizontal, actuate BACKRAISE at least 10 degrees to insure that the articulation actuates the seat limit switch. Actuate REVERSE TRENDLENBURG until motion stops. Check that the seat limit switch LS3 actually stopped the motion by actuating REVERSE TRENDLENBURG with the override control switches located on the shroud cap. The seat section should move further down by a small amount.

- If limit switch LS3 does not function as described above, check to be sure it is being actuated when seat section is within 0.5 ± 0.3 degrees of its mechanical stop (use REVERSE TRENDLENBURG function). If limit switch requires adjustment, see Section 8.

5.11.2 LS4 - BACK SECTION LIMIT SWITCH

- With the tabletop sections horizontal, manually depress the switch mounted to the underside of the back section. Attempt to actuate FLEX. The pump should turn on, but no motions should occur. Repeat for TRENDLENBURG and BACK LOWER.
- With the switch released, actuate the same functions. When motion has started, depress the switch. The pump should stay on and motion should stop.
- Starting with the tabletop horizontal, actuate BACK LOWER until motion stops. Check that motion stopped due to the back limit switch by actuating BACK LOWER with the override control switches located on the shroud cap. The back section should move further down by a small amount.
- If limit switch LS4 does not func-

tion as described above, check to be sure it is being actuated when back section is within 0.5 ± 0.3 degrees of its mechanical stop (use TRENDLENBURG function). If the limit switch requires adjustment, see Section 8.

5.11.3 LS5 - COLUMN LIMIT SWITCH

- Using the override control switches, raise the tabletop to its maximum height.
- Lower tabletop approximately 1/16" from maximum position.
- Set LS5 height and depth so that the switch disengages when the roller on the actuator connects with the "V" slot.
- Tighten switch mounting bracket screws.
- Using hand control, actuate tabletop RAISE and LOWER functions, checking to make sure LS5 stops table motion $1/16" \pm 1/32"$ before maximum table height.

5.12 TABLETOP BACK SECTION

Note: The back section is powered by two hydraulic cylinders, one on each side. The cylinder stroke is fixed and may not be the same on both sides. Unequal stroke produces greater articulation on one side than the other and the cylinders must be adjusted to balance any overtravel. This minimizes racking or twisting of the back section when in the full UP or DOWN position.

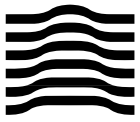
- Articulate back section to its full DOWN position (use normal patient orientation). Measure and record angular position of both right and left side as referenced to the column stage block. The measured angles must be 25 ± 1 degree. The amount of racking must be 1/2 degree or less.

- If adjustment is necessary, raise back approximately 5 degrees from its maximum DOWN position to expose the cylinder rod turning hole. Turn cylinder rod into clevis to increase DOWN articulation, and out of clevis to decrease articulation. One degree change is equal to 1.1 revolutions of the rod in the clevis. Apply Loctite 290 (wicking grade) to Rod/Clevis to relock adjustment.

- Articulate back section to its full UP position. Measure and record the angular position of both the right and left side. It must be 55 ± 1 degree and the amount of racking must be 1/2 degree or less. If not, adjustments must be made to equalize the amount of racking in the maximum UP and DOWN position. Repeat steps 1 through 3 as necessary.

5.13 TABLETOP SEAT SECTION (Trendelenburg/Reverse Trendelenburg)

- Articulate the seat section to its full DOWN position. Measure and record its angle as referenced to the column stage block. It should be 25 ± 1 degree.
- If adjustment is necessary, raise the seat section to horizontal or above, and loosen jam nut. Turn knuckle into cylinder rod by rotating the rod to increase DOWN articulation, and out of the cylinder rod to decrease articulation. One degree change is equal to 1.18 revolutions of the knuckle in the rod. Tighten jam nut against cylinder rod.
- Repeat step 1. The measured angle must be 25 ± 1 degree. Repeat step 2 if necessary.



5.14 TABLETOP LEG SECTION

Note: The leg section's articulation is powered by two hydraulic cylinders; one on the right side and one on the left side. The stroke of the cylinders is adjustable with cylinder rod stops to provide the same total articulation on each side. The leg section adjustment is made without the top leg board and all angles are measured with respect to the seat section casting.

1. Articulate the leg section to its full up position using override switches. Measure and record the angle of each leg frame.
2. The up adjustment is made with shims (37 & 38) between the seat section frame (14) and cap end cylinder clevis. Add shims to increase the angle or remove shims to decrease the angle. 0.010 inches of shim will alter the angle by approximately 1.0 degree.
3. Loosen the cap screws (40), insert or remove the required shim thickness to give a maximum up position of 80 degrees, then tighten the cap screws. Better screw access is attained if the seat section is raised slightly.
4. Repeat step. The measured angles must be 81 ± 1 degrees and within one degree of one another. Repeat steps 3 through 5 if necessary.
5. Remove the cap screws one at a time to apply Loctite (106), then tighten.
6. Articulate the leg section to its full down position, measure and record the angle of each leg section frame.
7. The down adjustment is made by

rotating the cylinder rod stops on the cylinder rods. Turn the cylinder rod stops toward the cylinder body to decrease maximum down articulation or away from the body to increase articulation. 1/8 revolution of the stop will alter the angle by about 1 degree.

- a. For the right cylinder, which has the return to level hardware attached to it, the attachment bracket (see Figure 9-18) must be removed prior to "leg down" adjustment. It is important that the cylinder rod stop be adjusted such that one of the radial tapped holes is vertical with respect to the cylinder body.
8. Back the articulation away from its maximum down position a fraction of a degree to allow easy rotation of the cylinder rod stop. Make the necessary adjustment based on steps 6 and 7 to give a maximum down angle of 105 degrees.
 9. Repeat step 6. The measured angles must be 105 ± 1 degrees and within one degree of each other. Repeat steps 7 and 8 if necessary.
 10. Apply Loctite (106) to the setscrews (108) and tighten in the cylinder rod stops.
 11. Double check all four adjustments. Correct as required.

5.15 SELF LEVELING TEST PROCEDURE (RL & SP only)

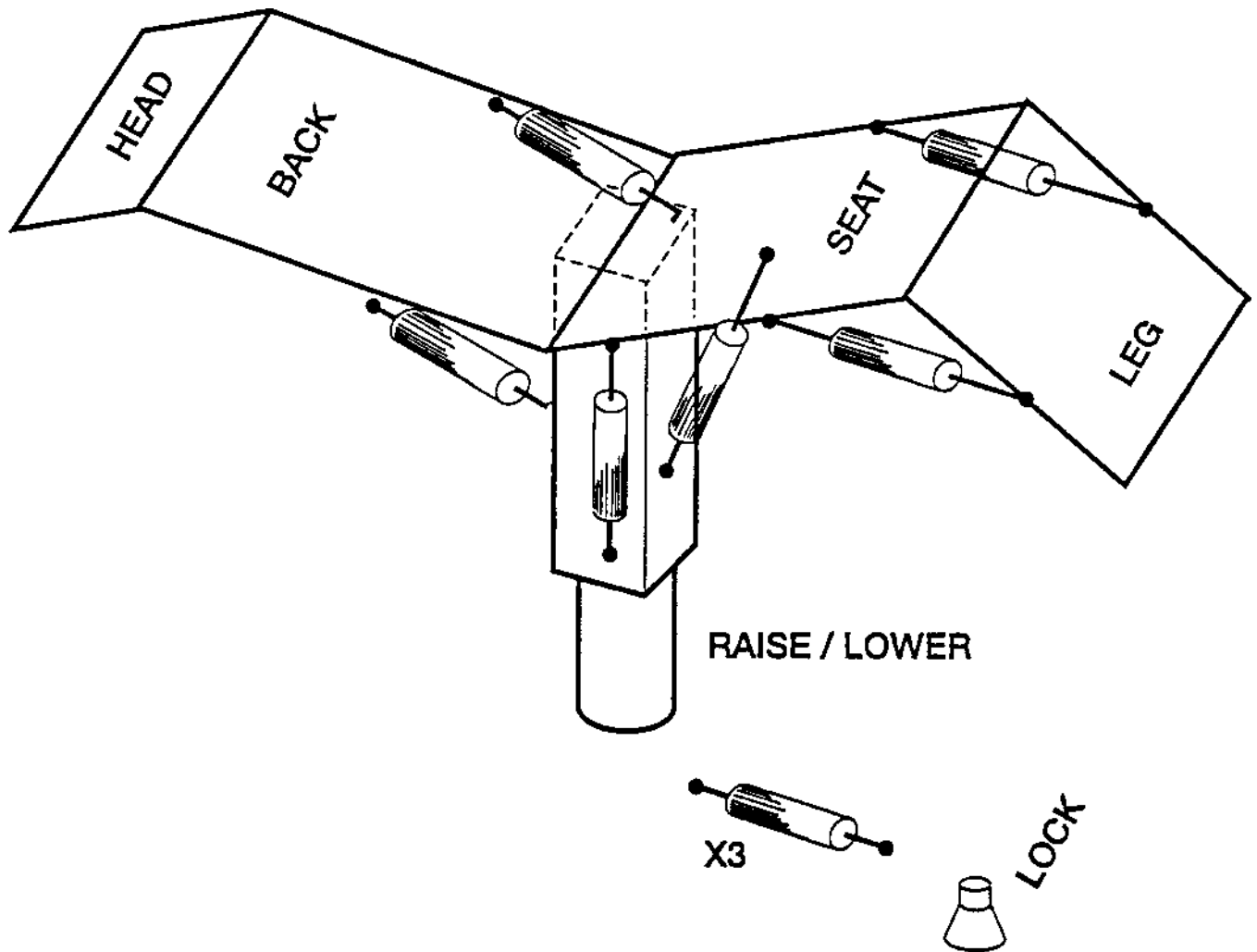
1. Position the table top such that the following positions are at least 10 degrees from level:

left tilt	seat up
back up	leg down
2. Actuate Return to Level. Tilt, back and seat must return to within 2 degrees of horizontal, and the leg section must return to within 2 degrees of the seat section.
3. Position the table top such that the following positions are at least 10 degrees from level:

right tilt	seat down
back down	leg up
4. Repeat paragraph 2.

IMPORTANT:

1. Table positioning will alternate on 1 to 1.8 second intervals until the top returns to level.
2. Refer to Section 8 for adjustment procedure.



Hydraulic Cylinder Locations



PRINCIPLES OF OPERATION

6.1 GENERAL VALVE INFORMATION

There are 11 two-position, three-way hydraulic cartridge valves (S1 thru S9, S16 and S17). When de-energized, the hydraulic-supply port is closed and the return-to-sump port is open to a particular hydraulic cylinder or valve. When energized, the return port is closed and the supply port is open to a particular hydraulic cylinder or valve.

There are six two-position, two-way hydraulic cartridge valves (S10 thru S15). When de-energized, the cartridge acts as a check valve. When energized, the valve acts as an open path for fluid.

All valves-in-fittings (check valves and flow-restrictors) are located adjacent to blue solenoid manifolds A & B.

The pilot check valves located in back, seat and leg section cylinders are not replaceable in the field. The entire cylinder must be replaced.

6.2 HYDRAULIC SYSTEM DESCRIPTION

Note: Refer to Hydraulic System Schematic at the end of this section for the following discussion.

The Quantum 3080 table is powered by an electro-hydraulic system utilizing a series of valves and cylinders to quietly and effectively operate the table. A special, high-efficiency gear pump is driven by a 24 VDC motor. The pump is rated at 0.25 gallons per minute and has a 1820 psi capacity. The system pressure is reduced to 1425 ± 25 psi through an external pressure-control valve. Solenoid actuated cartridge valves (Figures 6-1, 6-2, and 6-3) direct fluid to steel hydraulic cylinders.

Fluid is conducted through either

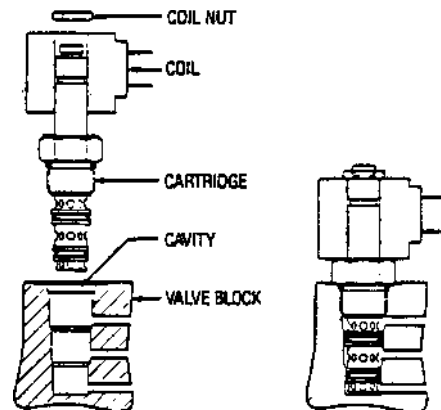


Figure 6-1. Cartridge Valve Concept

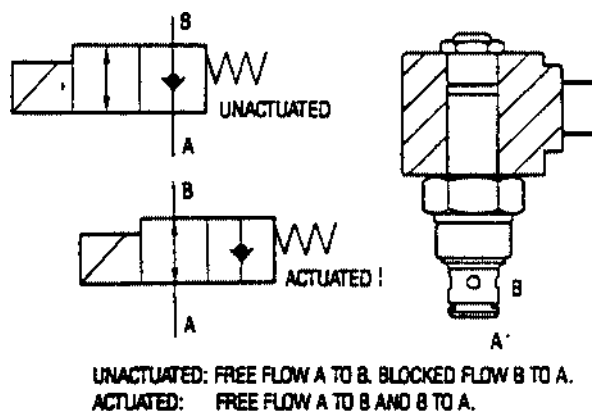


Figure 6-2. 2P2W Poppet Valve

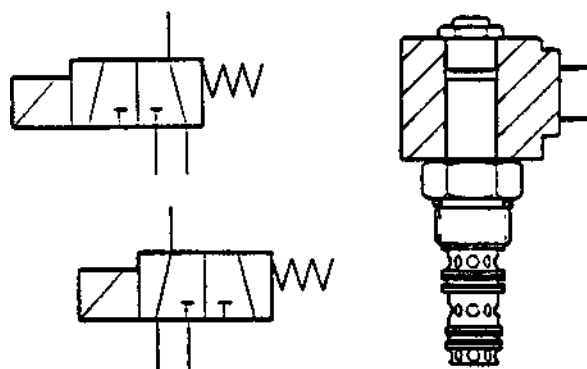


Figure 6-3. 2P3W Spool Valve

flexible, thermoplastic hoses, offering low resistance and maximum cleanliness, or through steel tubes. All hose, tube and port connections are SAE fittings or face seals (Figure 6-4), sealed with O-rings to provide maximum protection against leaks. Pilot-operated check valves (Figure 6-5) are built into the leg, seat and back section hydraulic cylinders (Figure 6-6) and are externally mounted to the tilt cylinder and raise/lower column. Flow-control restrictor and check valves (Figures 6-7 thru 6-11) are made integral parts of various tube and hose connectors to unclutter the hydraulic circuits. Flow fuses (Figure 6-12) are located in one of the leg and back hydraulic cylinders to stop section articulation if a failure in the delivery system is detected.

Three main filters (two 500-micron in reservoir, and one-10-micron in line) plus various small "last-chance" filters (104-micron) are located within the system at the inlet and outlet of most hydraulic cylinders to maintain oil cleanliness. A manual foot-operated pump (Figure 6-13) is provided for table operation in case of primary control failure (in such a case solenoid valves are operated by the 24 VDC power back-up battery).

All port connections are "SAE O-ring boss" and all hose and tube connections are "O-ring face seal".

Note: Exceptions are the hydraulic pump fittings which are metric and the 4 to 5 cavity valve connections (LEN2).

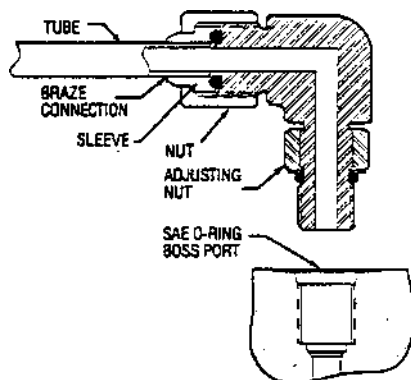


Figure 6-4. Tube Connections

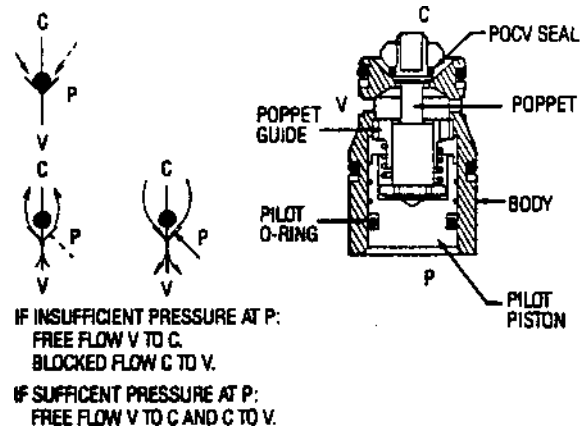


Figure 6-5. Pilot Operated Check Valve

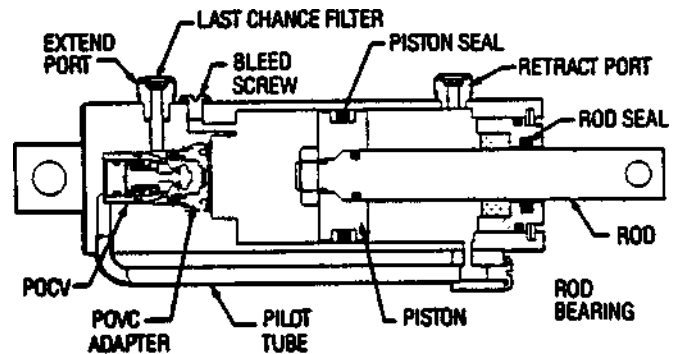


Figure 6-6. Typical Hydraulic Cylinder

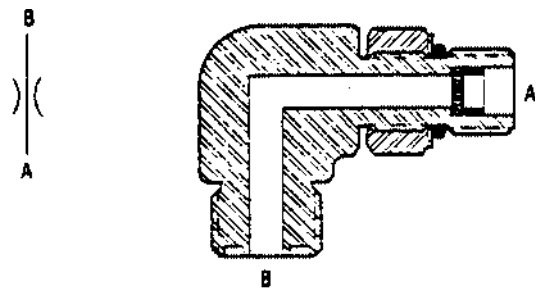


Figure 6-7. Restrictor Valve

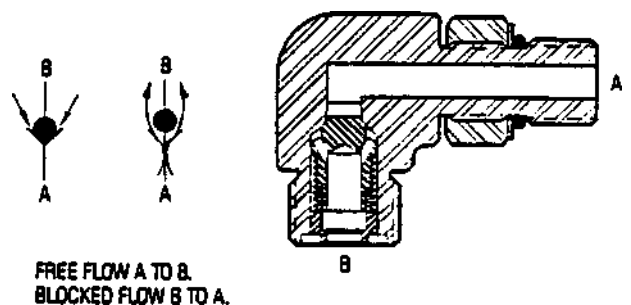


Figure 6-8. Check Valve

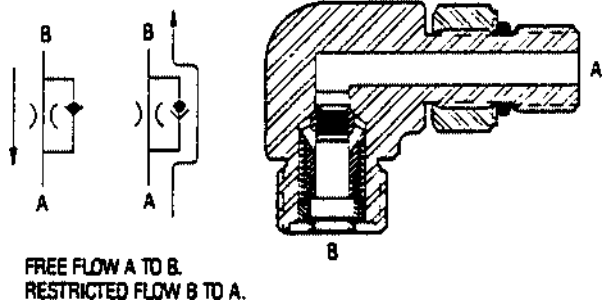


Figure 6-9. Flow Control Valve

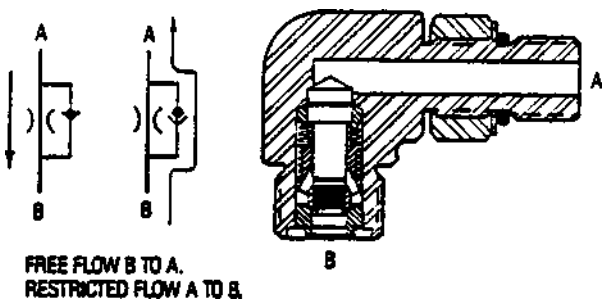


Figure 6-10. Flow Control Valve

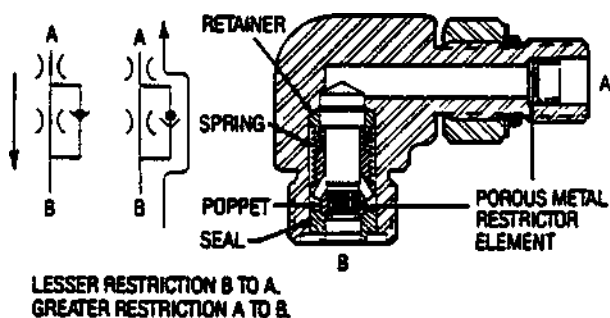


Figure 6-11. Bi-Flow Restrictor Valve

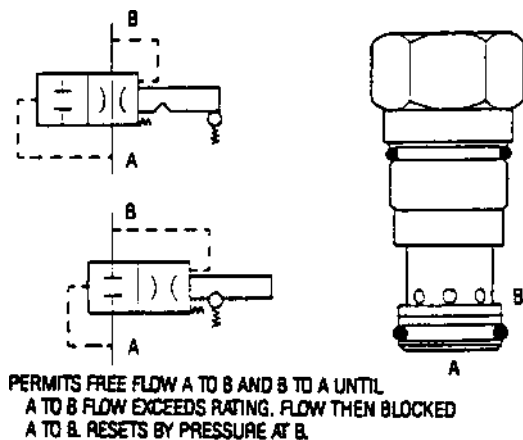


Figure 6-12. Flow Fuse

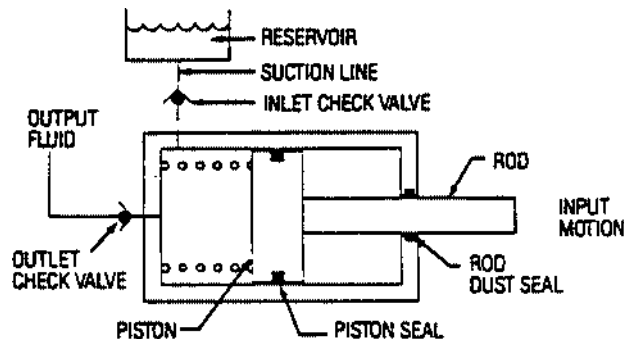


Figure 6-13. Manual Pump Operating Principle

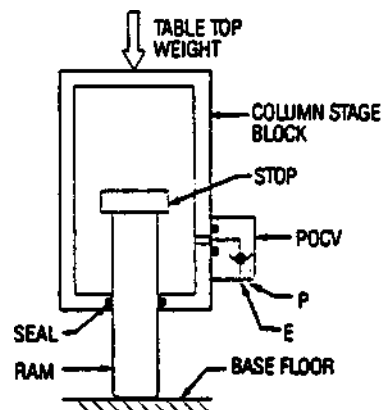


Figure 6-14. Column Ram

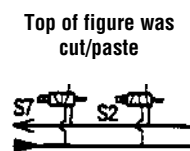
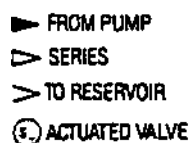


Figure 6-15. Locking Tilt Schematic

6.3 CYLINDER/SOLENOID ACTUATION

Raise/Lower (Figure 6-14)

The tabletop is raised when solenoid S9 is energized. There is no speed control for this function. The pilot check valve located on the side of the column allows flow to raise the tabletop.

The tabletop is lowered when S1 is energized, opening the pilot check valve on the side of the column. Lowering speed is controlled by a restrictor at port A2. An internally located restrictor, shunted around the S1 valve, dampens the closing of the pilot check valve by bleeding hydraulic pressure to sump when the valve is de-energized.

• **Tilt** (Figure 6-15)

The tilt function is accomplished by one hydraulic cylinder with a double pilot check valve arrangement. For left tilt, S7 is energized, diverting hydraulic fluid through a restrictor for speed control. Fluid enters the retract port of the cylinder and simultaneously opens the retract pilot check permitting flow out the extend port and on through the S2 valve. For right tilt, the same sequence is followed except S2 is energized and the cylinder extends. The cylinder has a mechanical lock system to assure the cylinder is full of fluid before the mechanical lock is hydraulically unlocked.

• **Back Up/Down** (Figures 6-16 and 6-17)

The back section is driven by two hydraulic cylinders connected in parallel. One cylinder (L4) contains the pilot check valve and the other (L3) a flow fuse. Both are used for section articulation.

To extend the back up, S5 and S10 solenoids are energized. Hydraulic fluid is diverted through S5, speed-control restrictor at A3 port, de-energized S15 valve seen as a check valve, and the pilot check valve on the L4 cylinder to the extend ports of both L4 and L3 which causes the cylinders to extend. The re-

turn lines of L3 and L4 return fluid to sump through the energized S10 and the normally open port of S4.

To retract the back down, S4 and S15 solenoids are energized. Fluid is diverted through S4, speed-control restrictor at A4 and the deenergized S10 valve seen as a check valve to the retract port of L3 and both the retract and pilot ports of L4. The return fluid is diverted from L3 and L4 through the now open pilot check valve, S15, and the normally open port of S4.

• **Flex/Reflex** (Figures 6-18 and 6-19)

To flex the tabletop, two back cylinders and the seat cylinder are connected in series to produce a coordinated movement.

For flex, S4 and S14 solenoids are energized. Hydraulic fluid is diverted through S4, the speed-control restrictor at A4 port, and deenergized S10 seen as a check valve to the retract ports of back-section cylinders L3 and L4. The return fluid from L3 and L4 is forced through S14 and deenergized S13 valve seen as a check valve, to the retract and pilot ports of the seat section (L5), retracting the cylinder. This action causes the tabletop to flex. The return fluid from L5 to sump is diverted through the normally open port of S6.

For reflex, S6, S10 and S13 solenoids are energized. Hydraulic fluid is diverted through S6, the speed-control restrictor at A5 port, and the pilot check valve on L5 to extend the cylinder and raise the seat section. Return fluid travels through S13 and the deenergized S14 valve seen as a check valve to the extend ports of the L4 and L3 cylinders to raise the back section. This action causes the table to reflex. The return fluid travels back to sump through S10 and the normally open port of S4.

• **Trendelenburg/Reverse Trendelenburg** (Figures 6-20 and 6-21)

For Trendelenburg articulation, the back and the seat section cylinders are connected in series to provide coordinated movement.

To articulate the unit in Trendelenburg, S6, S12 and S15 are energized. Hydraulic fluid is diverted through S6, the speed-control restrictor at A5 port, and the L5 pilot check valve, extending the seat-section cylinder to raise the section. The return fluid travels through S12 and the deenergized S11 valve seen as a check valve to the retract port of cylinders L3 and L4, causing the back section to go down. The return fluid from L3 and L4 travels through S15 and S5 back to sump. The action of these two sections produces Trendelenburg.

To articulate the tabletop in Reverse Trendelenburg, S5 and S11 are energized. Hydraulic fluid is diverted through S5, the speed-control restrictor at A3 port, deenergized S15 seen as a check valve, and the L4 pilot check valve to extend the back section. The return fluid from the back section cylinder travels through S11 and the deenergized S12 valve seen as a check valve to the pilot check valve on the seat-section cylinder, retracting it and causing the seat section to go down. This action produces Reverse Trendelenburg. The return fluid from the seat-section cylinder travels through the normally open S6 back to sump.

• **Leg Up/Down** (Figures 22 and 23)

The leg section is driven by two hydraulic cylinders connected in parallel. One cylinder contains a pilot check valve and the other a flow fuse. Both are used for section articulation.

To articulate the leg section upward, S3 solenoid is energized. Hydraulic fluid is diverted through S3 and a speed-control restrictor at B3. The fluid opens a pilot check valve and extends the L6 and L7 cylinders, raising the leg section up. The return fluid is diverted through the normally open S8 and then back to sump.

To articulate the leg section down, S8 solenoid is energized. Hydraulic fluid is diverted through S8 and the speed-control restrictor at B4 port. The fluid enters the retract port and opens the pilot check valve of L7 and lowers the

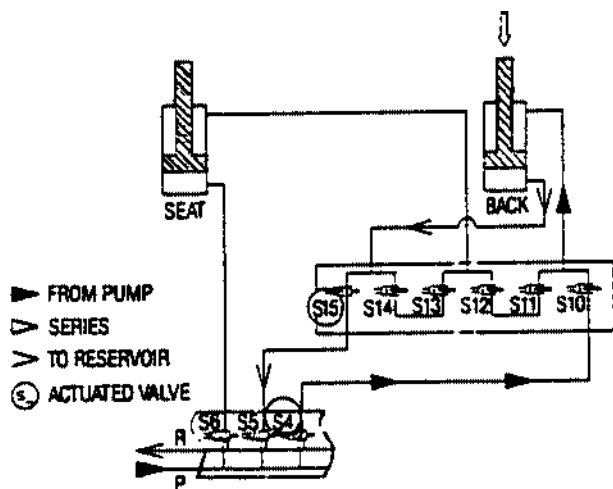


Figure 6-16. Back Down Schematic

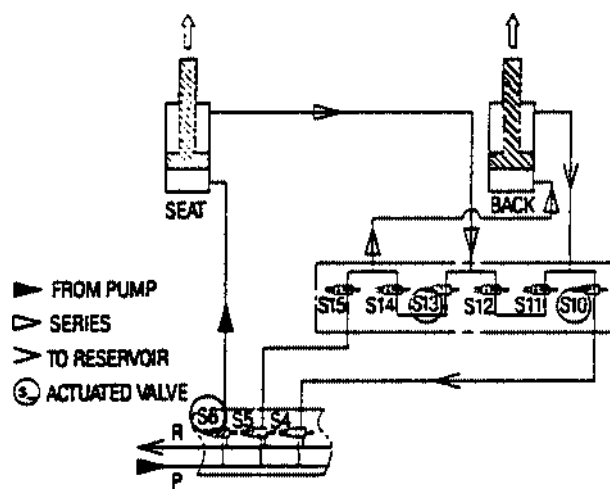


Figure 6-19. Reflex Schematic

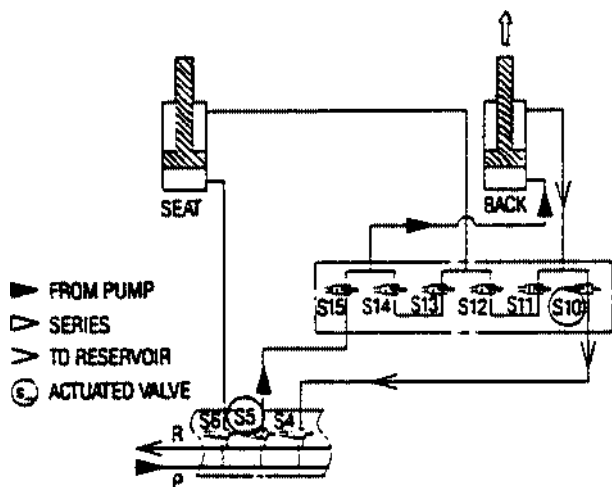


Figure 6-17. Back Up Schematic

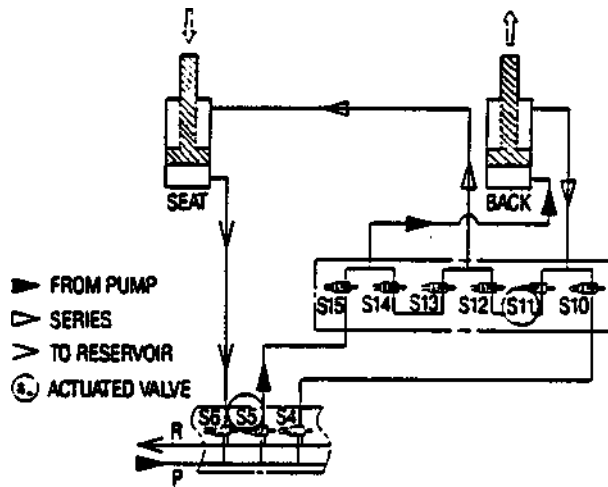


Figure 6-20. Reverse Trendelenburg Schematic

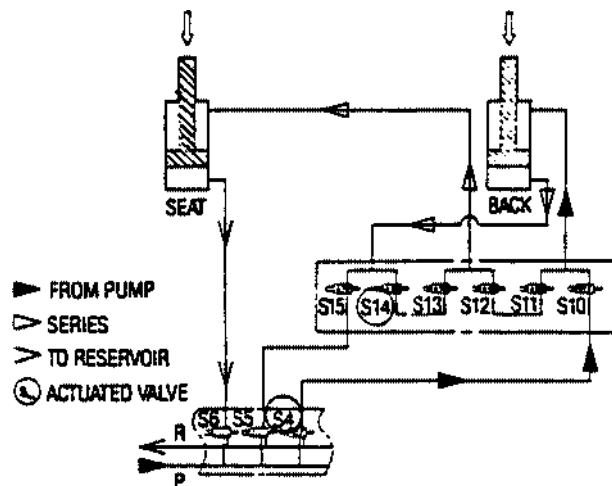


Figure 6-18. Flex Schematic

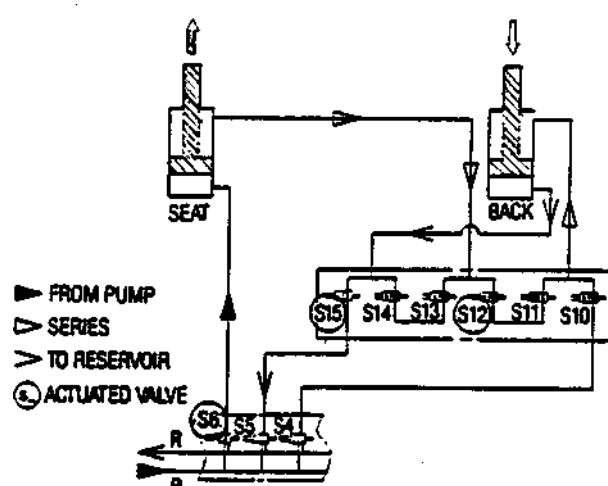


Figure 6-21. Trendelenburg Schematic

leg section. The return fluid is diverted through the speed-control restrictor at B3 port, the normally open port of S3 and back to sump.

• **Floor Lock** (Figures 24 and 25)

The table has three locking legs driven, through a mechanical over-center lock mechanism, by cylinders L8, L9 and L10. All the cylinders are connected in parallel.

To extend the floor locks, solenoid valve S17 is energized and hydraulic fluid is diverted through it. The speed of cylinder travel is controlled by a restrictor valve in the extend port on each cylinder. Return fluid is diverted back to sump through the normally open S16 valve.

To retract the floor locks, solenoid valve S16 is energized. Hydraulic fluid is diverted through S16 to retract the cylinder. Return fluid is diverted, through the speed-control restrictor valve, through the normally open port of S17 and then to sump.

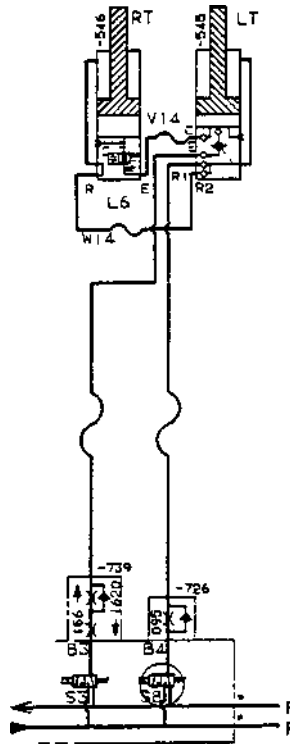


Figure 6-23. Leg Down Schematic

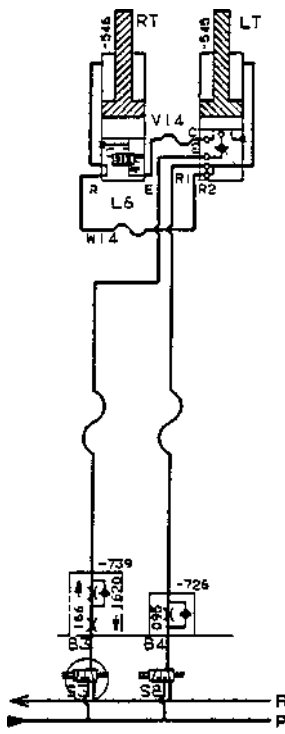


Figure 6-22. Leg Up Schematic

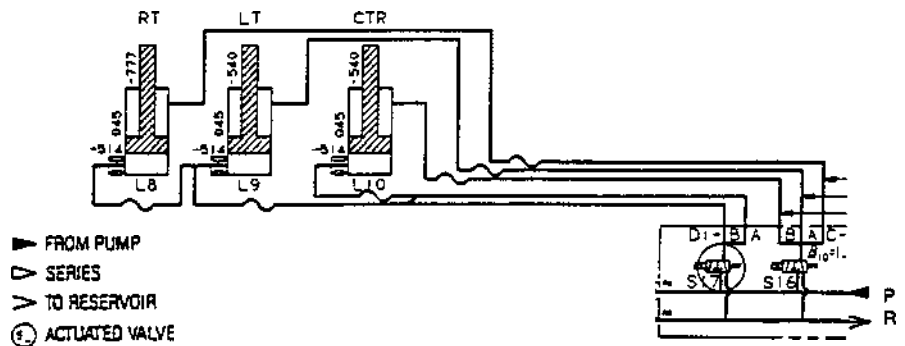


Figure 6-24. Floor Locks Extended Schematic

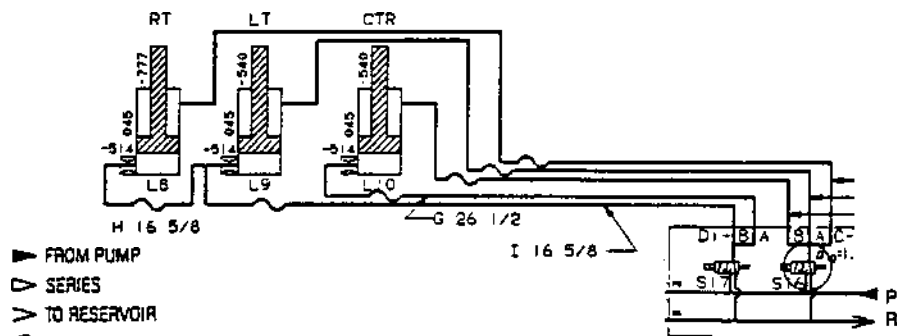


Figure 6-25. Floor Locks Retracted Schematic



6.4 TROUBLESHOOTING

The Troubleshooting Chart (Table 6-1) provides an easy-to-use sequence of steps that should identify and correct most problems encountered in hydraulic system operation. A working knowledge of the hydraulic schematics is essential to understand how

the appropriate remedy may or may not correct the problem (see Figure 6-15 thru 6-21 and the System Schematic in Section 6.3).

Refer to Section 7, Electrical system, when the cause of the problem

appears to be electrical. Use Table 7-1, Electrical Troubleshooting chart, in conjunction with Table 6-1 when applicable. The troubleshooting charts are separated because of the need to understand system operation and because, in most cases, problems will be either hydraulic or electrical, not both.

TABLE 6-1. HYDRAULIC SYSTEM TROUBLESHOOTING

Problem	Symptom/Cause	Remedy	Where to Find
1. Table will not operate.	1. Hydraulic pump does not come on.	1) Refer to Table 7-1, Electrical Troubleshooting.	
	2. Pump runs but does not provide power to system.	1) Check hydraulic fluid level. Add fluid if necessary. 2) Install pressure gauge at test point. Operate manual pump. Pressure gauge should read 1425 ± 25 psi. 3) If pressure is not right, adjust relief valve. 4) If pressure is right, use manual pump and attempt to operate individual functions. 5) If functions operate, proceed to Symptom 3. 6) If an individual function does not operate, proceed to appropriate problem	Sec. 8.11 Sec. 5-3: Fig. 9.5
	3. Table operates with manual pump but not with electric pump.	1) Be sure electric pump is operating. Refer to Table 7-1, Electrical Troubleshooting if necessary. 2) Turn pump on and observe pressure on gauge at test port. If pressure is not 1425 ± 25 psi, adjust relief valve. 3) If pressure cannot be adjusted to this level, replace pump or relief valve. 4) If pressure can be adjusted, operate functions one at time. Proceed to appropriate problem if an individual function does not operate.	Sec. 5.3; Fig. 9.5
2. Table functions operate, but they are too slow.	1. Hydraulic pressure low.	1) Install pressure gauge at test port. 2) Using manual pump, pressure should read 1425 ± 25 psi. Adjust relief valve. 3) check for knicks in hoses or damaged tubing, correct as necessary. 4) Follow pump troubleshooting procedures (Problem 1, Symptom 3).	Sec. 5.3; Fig. 9.5
3. Floor locks do not operate.	1. Floor lock solenoid coils do not energize.	1) Refer to Table 7-1, Electrical Troubleshooting.	
	2. Mechanical binding of mechanism.	1) Floor locks out of adjustment. 2) Floor locks shaft/bearing dirty-corroded. 3) Floor lock housing loose.	Sec. 5.6 Fig. 9-4, Item 13/24 Fig. 9-4, Item 25

TABLE 6-1. HYDRAULIC SYSTEM TROUBLESHOOTING (continued)

Problem	Symptom/Cause	Remedy	Where to Find
3. Floor locks do not operate (continued).	3. Solenoid S17 (LOCK) or S16 (UNLOCK) does not actuate when energized.	1) Valve cartridge defective - replace. 2) Solenoid coil defective - replace.	Sec. 8-3; Fig. 9.5
	4. One or more of the hydraulic cylinders (L8, L9, L10) is defective or binding.	1) Replace defective hydraulic cylinder(s). 2) Determine source of binding - repair or replace.	Sec. 8.1.1, 8.1.2, 8.1.3; Fig 9.4
4. Tabletop Raise/Lower			
a. Tabletop will not raise.	1. Solenoid S9 is not being electrically energized.	1) Refer to Table 7-1, Electrical Troubleshooting	
	2. Solenoid valve S9 does not actuate when energized.	1) Valve cartridge defective - replace. 2) Solenoid coil defective - replace.	Sec. 8.3
	3. Hydraulic pressure low.	1) Adjust pressure.	Sec. 5.3
	4. Raise/Lower mechanism binding.	1) Adjust mechanism movement.	Sec. 8.10
b. Tabletop will not lower.	1. Raise/Lower mechanism binding.	1) Adjust mechanism movement.	Sec. 8.10
	2. Solenoid S1 is not being electrically energized.	1) Refer to Table 7-1, Electrical Troubleshooting.	
	3. Solenoid valve S1 does not actuate when energized.	1) Valve cartridge defective - replace. 2) solenoid coil defective - replace.	Sec. 8.3
	4. Pilot check valve does not open.	1) Valve defective - replace. 2) Adjust hydraulic pressure.	Sec. 8.3 Sec. 5.3
	5. Lower bleed restrictor at A2 not working properly.	1) Replace the restrictor.	Fig. 9.22
c. Tabletop drifts down when in raised position.	1. Pilot check valve is leaking internally.	1) Pilot check valve defective - replace.	Sec. 8.3
	2. Raise/Lower cylinder L1 is defective.	1) Call Erie Field Engineering.	



TABLE 6-1. HYDRAULIC SYSTEM TROUBLESHOOTING (continued)

Problem	Symptom/Cause	Remedy	Where to Find
5. Tabletop Tilt			
a. Tabletop tilt will not operate.	1. Solenoid S7 (tilt left) or S2 (tilt right) is not being electrically energized.	1) Refer to Table 7-1, Electrical Troubleshooting.	
	2. Solenoid valve S7 (tilt left) or S2 (tilt right) does not actuate when energized.	1) Valve cartridge defective - replace. 2) Solenoid coil defective - replace.	Sec. 8.3
	3. Hydraulic pressure low.	1) Adjust pressure.	Sec. 5.3
b. Tilt function drifts.	1. Locking tilt cylinder defective.	1) Replace tilt cylinder.	
6. Tabletop Back Section			
a. Back section will not raise.	1. Solenoid valve S5 or S10 is not being electrically energized.	1) Refer to Table 7-1, Electrical Troubleshooting	
	2. Solenoid valve S5 or S10 does not actuate when energized.	1) Valve cartridge defective - replace. 2) solenoid coil defective - replace.	Sec 8.3
b. Back section will not lower.	1. Solenoid valve S4 or S15 does not actuate when energized.	1) Refer to Table 7-1, Electrical Troubleshooting.	
	2. Solenoid valve S4 or S15 does not actuate when energized.	1) Valve cartridge defective - replace. 2) Solenoid coil defective - replace.	Sec. 8.3
	3. Pilot check valve in L4 not opening.	1) Replace L4 hydraulic cylinder.	Sec. 8.8.4
c. Back section drifts down.	1. Pilot check valve in L4 is leaking.	1) Replace L4 hydraulic cylinder.	Sec. 8.8.4
	2. Cylinder L3 or L4 is defective.	1) Replace hydraulic cylinder.	Sec. 8.8.4
7. Tabletop Flex			
a. Tabletop will not flex or reflex.	1. Back section does not articulate.	1) Refer to Problem 6.	

TABLE 6-1. HYDRAULIC SYSTEM TROUBLESHOOTING (continued)

Problem	Symptom/Cause	Remedy	Where to Find
7. Tabletop Flex (cont'd) b. Tabletop will not flex.	1. Solenoid valve S4 or S14 is not being electrically energized.	1) Refer to Table 7-1, Electrical Troubleshooting.	
	2. Solenoid valve S4 or S14 does not actuate when energized	1) Valve cartridge defective - replace. 2) Solenoid coil defective - replace.	Sec 8.3
	3. Pilot check valve in L4 or L5 not opening.	1) Valve defective - replace.	Sec. 8.3
c. Tabletop will not reflex.	1. Solenoid valve S6 or S10 is not being electrically energized.	1) Refer to Table 7-1, Electrical Troubleshooting.	
	2. Solenoid valve S6 or S10 does not actuate when energized.	1) Valve cartridge defective - replace. 2) Solenoid coil defective - replace.	Sec. 8.3
d. Back section drifts down.	1. Back section is not operating properly.	1) Refer to Problem 6-c.	
e. Seat section drifts down.	1. Pilot check valve in L5 leaking internally.	1) Replace defective hydraulic cylinder.	Sec. 8.8.6
	2. Cylinder L5 is defective.	1) Replace defective hydraulic cylinder.	Sec. 8.8.7
8. Tabletop Leg Section a. Leg section will not raise	1. Solenoid valve S3 is not being electrically energized.	1) Refer to Table 7-1, Electrical Troubleshooting.	
	2. Solenoid valve S3 does not actuate when energized.	1) Valve cartridge defective - replace. 2) Solenoid coil defective - replace.	Sec. 8.3
	3. Pilot check valve in L7 is stuck closed.	1) Hydraulic cylinder defective - replace.	Sec. 8.8.5
b. Leg section will not lower.	1. Solenoid valve S8 is not being electrically energized.	1) Refer to Table 7-1, Electrical Troubleshooting.	
	2. Solenoid valve S8 does not actuate when energized.	1) Valve cartridge defective - replace. 2) Solenoid coil defective - replace.	Sec. 8.3
	3. Pilot check valve in L7 is stuck closed.	1) Hydraulic cylinder defective - replace.	Sec. 8.8.5



TABLE 6-1. HYDRAULIC SYSTEM TROUBLESHOOTING (continued)

Problem	Symptom/Cause	Remedy	Where to Find
8. Tabletop Leg Section (cont'd) c. Leg section drifts down.	1. Pilot check valve in L4 is leaking internally.	1) Hydraulic cylinder defective - replace.	Sec. 8.8.5
	2. Cylinders L6 or L7 defective.	1) Hydraulic cylinder defective - replace.	Sec. 8.8.5
9. Tabletop Trendelenburg does not function.	1. Tabletop Flex/Reflex does not operate.	1) Refer to Problem 7.	
	2. Solenoid valve S6, S12, or S15 is not being electrically energized.	1) Refer to Table 7-1, Electrical Troubleshooting.	
	3. Solenoid valve S6, S12, or S15 does not actuate when energized.	1) Valve cartridge(s) defective - replace. 2) solenoid coil defective - replace.	Sec. 8.3
10. Tabletop Reverse Trendelenburg does not function.	1. Tabletop Flex/Reflex does not operate.	1) Refer to Problem 7.	
	2. Solenoid S5 or S11 is not being electrically energized.	1) Refer to Table 7-1, Electrical Schematics.	
	3. Solenoid S5 or S11 does not actuate when energized.	1) Replace defective valve cartridge. 2) Solenoid coil defective - replace.	Sec. 8.3
11. Manual Pump a. Loses prime/leaks.	1. Oil leakage around stem.	1) Replace the pump assembly.	Fig. 9.7
	2. Check valve leaking/stuck closed.	1) Replace the check valve.	Fig. 9.7

TABLE 6-1. HYDRAULIC SYSTEM TROUBLESHOOTING (continued)

Problem	Symptom/Cause	Remedy	Where to Find
12. Oil found in base.	1. Loose hydraulic fitting.	1) Tighten fitting.	Fig. 9.22
	2. Loose or defective cylinder bleed screws.	1) Tighten or replace bleed screw assembly or O-ring.	
	3. Leaking pump reservoir.	1) Install reservoir replacement kit.	
	4. Leaking column lift cylinder ram seal.	1) Install column lift cylinder ram seal replacement kit.	
13. Oil found in base (high viscosity).	1. Excess table column lubricating fluid.	1) Wipe up excess fluid.	Sec. 8.10
14. Column shrouds fall or bind.	1. Interlock tabs on shroud assembly bent.	1) Carefully straighten tabs.	Fig. 9.1; Items 2,3,4
	2. Shroud mounting support bent.	1) Straighten support.	Fig. 9.3; Item 24
	3. Items stored under shrouds on base cover.	1) Remove items.	
	4. Improper installation of shrouds.	1) Adjust shrouds.	Sec. 8.2

6.5 HYDRAULIC SYSTEM SCHEMATIC

Following is the schematic for the complete hydraulic system. Use it in conjunction with Figures 6-15 thru 6-25 to understand hydraulic system operation.

- **HYDRAULIC SYSTEM SCHEMATIC - 3080RC (before 6/89) Part 1 of 1**
- **HYDRAULIC SYSTEM SCHEMATIC - 3080RC (after 6/89) Part 1 of 1**
- **HYDRAULIC SYSTEM SCHEMATIC - 3080RL Part 1 of 1**

7.1 SYSTEM DESCRIPTION



CAUTION

Static electricity can damage microprocessor controls. Indiscriminate probing of circuits or improper connections may result in immediate or delayed electrical failure. If the electronics are to be accessed, use a personal grounding device. Exercise care in all activities involving the electronic circuitry.

The Quantum 3080RC Surgical Table Control System is designed for maximum reliability and includes adequate system redundancy for almost any circumstance. The control system utilizes microprocessor technology to control the hydraulic pump and solenoid valves. The primary control system consists of a "master" and a "slave" computer. A secondary and separate override control system allows operation of basic table functions should the primary microprocessor system become inoperative.

The master computer is located on the table column, while the slave computer is located in the hand control. Communication between the two is through a coiled cord (RS232 format). The master computer selects which outputs are to be actuated based on inputs from the hand control, foot control (optional), and table sensors. An Intel 8032 microcontroller is the heart of the master computer, with software stored on a 27C256 EPROM. Solenoid outputs are generated through an 8255, buffered with open-collector drivers. A watchdog timer and appropriate software monitor input/output signals to ensure graceful (instant) recovery should the I/O ports become configured in an erroneous state. Current sensors prevent the solenoids from being turned on by improper signals. Input isolation is also provided for the seat, raise, column and floor-lock limit switches.

Input comparators indicate low-battery conditions, first through an LED on the hand control and, more specifically, on LEDs located on the table-control PC board mounted under the shroud.

The slave computer provides user inputs (from touch-pad switches) to the master computer. It also receives feedback signals and turns on the proper status LEDs. An Intel 80C31 microcontroller is the heart of the slave computer with software stored on a 27C256 EPROM. The LED buffer inputs and touch-pad matrix strobe inputs are generated through an 8255. Like the master computer, a hardware watchdog timer and software routines ensure correct I/O port status. The use of microprocessors allows for complex control functions to be implemented with minimum hardware and through the use of a small, lightweight pendant control.

Simple yet reliable backup is provided by a secondary and separate override system which allows operation of basic table functions should the primary microprocessor system become inoperative. The override control assembly uses different and basic technology. It turns off microprocessor controls when actuated by opening all driver lines and actuating the function selected at the override switch PC board. It bypasses the solenoid power cut-back circuit and turns the pump motor and solenoids fully on.

Input lines are fused and include a line filter and transient protection. Input voltage-selector switches allow the table to be operated on 100, 120, 220 or 230/240 VAC, 50/60 Hz. A battery-powered table includes a 24-VDC, 24-AH rated battery for the pump motor. An integral battery charger requires 24 hours for 90% battery charge, 36 hours for 95%, and 48 hours for 100% charge. A minimum of 36 hours is recommended.

7.2 PRINCIPLES OF OPERATION

7.2.1 Incoming Power

A line cord, fused in the table at F1 and F2 (6 amp at 120 VDC, 4 amp at 240 VAC) feeds 120 VDC (domestic units) to the line filter. The line filter supplies line voltage to the power transformer and each of two battery chargers (one charger if a line-powered table). Each charger is fused and the rating is based on line voltage.

7.2.2 Power Control Assembly

This module is located in the table base and contains the control battery charger and the power-control PC board. This circuit board monitors and controls the following:

- Battery and battery chargers
- Actuation and protection of the hydraulic pump and solenoid
- Power-up and line-cord operation relays
- Power cut-back circuitry
- AC signal indicator for the line-cord LED on the hand control.

Jumpers on the circuit board identify whether it is battery or line-cord (electric) type.

The battery charger(s) supply 24 VDC to the control and to the motor batteries, provided the line cord is plugged in. Line-cord power is the **primary** power for battery tables. Battery voltage is monitored by the table control, through the hand control on power-up, and every 10 minutes thereafter. The table control sends a "charger off" signal to the power-control PC board to isolate the chargers and batteries, then monitors the battery voltage. If low voltage is sensed, the table control sends a low-battery signal to the low-battery LED on the hand control, as well as to the low-battery LED on the table control PC board.



Control power-up/power-down is generated on the power-control PC board via direct signals from the hand-control ON/OFF touch pads. These signals activate a latch relay on the power-control PC board which transfers the 24 VDC signal to the table control PC board. This latch relay CR3, which is multi-poled, also isolates the batteries from the table control to conserve battery life when the unit is off, and powers the delay circuit for motor and coil enable. The latch relay can also be set (turn power off) from the override switch PC board whenever any of the manual switches is activated.

The hydraulic pump motor is activated using either the table function switches on the hand control or the function switches on the override board. In either case, a low (DC ground) signal is fed to switching transistor Q6, which provides 24 VDC to motor. The control circuitry is protected from a locked or shorted pump motor by a current-monitoring circuit which opens the pump motor line when the current exceeds 25 amps. This circuit is automatically reset when the current drain is reduced or eliminated.

The hydraulic solenoid coils are also powered from the power-control PC board. The control circuitry is protected from shorted coils/components by a current-monitoring circuit. This circuit opens the solenoid voltage line when current exceeds 2.5 amps. The circuit is automatically reset when condition is corrected. A solenoid power-cut circuit is used by the control to save battery power. When the hand control is being used, the 24 VDC solenoid voltage is cut to approximately 7 to 9 volts after the coil is energized. This current is enough to hold the hydraulic plunger open once it has been initially energized. The feature is not used when any of the override switches is activated.

The AC power indicator, located on the hand control, is sensed on the power-control PC board. When the line cord is plugged in, the battery charger energizes opto-isolator(s) that transfer a DC ground to the table control PC board for processing, which turns on the hand control LED.

A control reset signal from the table-control PC board energizes a timing circuit on the power-control PC board to delay (microseconds) the pump motor and hydraulic solenoid coil operating voltage until all I/O ports can be set. This prevents any erroneous table articulation at power-up.

7.2.3 Table Control PC Board

The table-control PC board (master computer) controls all table functions based on inputs from the hand control, foot control (optional) and table sensors. Communication with the hand control is through an RS232 format line.

The table-control PC board contains a DC-DC converter which reduces the 24 VDC from the power-control PC board to 5 VDC for use in this board and the hand control. Test points are on the board to monitor this voltage.

Battery voltages are monitored by comparators on the board. The circuit responds by indicating battery status to the hand control for display to the operator.

Floor-lock microswitch (two) signals are fed into the board, which responds by signaling the hand control to indicate floor-lock status and enabling hand-control table operation. If an unlock indication is sensed by the table-control PC board, the hand control is disabled.

Foot control signals are input directly into the board via opto-isolators. The particular table function is activated when a DC ground is applied to the appropriate pin. The table must be on and properly oriented for this option to work.

The AC ON signal from the power-control PC board is processed by this board and transmitted, via RS232, to the hand control for display.

Signals from the limit switches for stopping the seat, back and raise/lower cylinders are input directly into this board via opto-isolators. These switches will stop table movement prior to reaching a mechanical stop indicated by the hand control.

The I/O drivers provide a separate ground to each hydraulic solenoid coil when a table function is activated. The positive voltage, from the power-control PC board, is already prewired to each coil. All coil activation through the hand control is through this board.

When using the hand control, the motor ON signal is generated by the I/O driver board.

A watchdog timer monitors the transmit line from the table-control PC board to the hand control. This circuit is looking for a burst of information every 100 seconds. If not sensed, the CPU will attempt to reset prior to an automatic cutoff.

Note: A jumper is used at P29 to configure for a Battery table.

7.2.4 Hand Control

The hand control houses the "slave" computer which controls all touch-pad switches (except ON and STOP/OFF) and all LED table-operation status indications.

Signals from the table function touch pads are acknowledged and transmitted, via an RS232 format line, to the table-control PC board which, in turn, activates the particular hydraulic solenoid. The LEDs next to the function touch pads indicate the operation status of the table as received from the "master" computer on the table-control PC board. The AC ON, BATTERY ON, and LOW BATTERY LED signals are generated directly from the power-control PC board.

A watchdog timer monitors the transmit line of the CPU for proper bursts of information. A CPU reset is generated if an error is detected.

The hand-control PC board is powered by +5 VDC from the DC-DC converter on the table-control PC board.

7.2.5 Override Switch Board

All signals generated by the override switches are controlled by this board, i.e., all table-positioning and floor-lock switch signals. The hand control, table-control PC board, and most circuitry on the power-control PC board are bypassed when any override switch is energized. A 24-VDC power supply, either from the batteries or from the line cord, is necessary to operate the hydraulic solenoid coils. It is not needed for the hydraulic pump since a foot-operated pump backs up this device.

When an override switch is energized, three multi-poled relays (CR1, CR2 and CR3) are energized, isolating the hydraulic solenoid coils from the table-control PC board and the hand control. Simultaneously, a DC ground signal is fed to the power-control PC board to turn on the hydraulic pump if possible (see note), and to turn off power to the hand control.

***Note:** If the line cord is plugged into the table or if motor-battery power is available (battery-powered tables only), the hydraulic pump will come on. Otherwise the control batteries are used along with the manual hydraulic pump. The control batteries do not have the capability to run the hydraulic pump.*

The second pole of the override switch applies a DC ground to the proper hydraulic coil for activation. Circuitry on the board prevents more than one switch being acknowledged.

7.3 TROUBLESHOOTING

The Troubleshooting Chart (Table 7-1) provides an easy-to-use sequence of steps that should identify and correct most electrical problems encountered. Refer to the electrical schematics in Section 7.4 when using the Troubleshooting Chart.

Refer to Section 6, Hydraulic System, when the cause of the problem appears to be hydraulic. Use Table 6-1, Hydraulic System Troubleshooting, in conjunction with Table 7-1 when applicable.

Refer to Table 7-2, Battery Diagnostics to determine proper battery voltages (battery-operated tables only).

7.3.1 ELECTRICAL TROUBLESHOOTING GUIDELINES

- Prior to replacing any PC boards or other components suspected of being defective, make sure all cable plugs and fully inserted into their respective jacks.
- Make sure all cable pins are installed and locked into place on the plug(s).
- When making any DC voltage measurements, reference the DC ground, **not** the chassis ground. (These two points are isolated from each other.)
- The pump motor and/or the hydraulic solenoids can be checked by applying **24 VDC** only directly to the component.



CAUTION



Isolate the coil and/or pump motor from the control by disconnecting the wires on the motor terminal board, or slip the wires off the solenoid coil.

- To completely disconnect power to the table, the line cord as well as the batteries **must** be disconnected.
- When resoldering or replacing any of the table or floor-lock microswitches, isolate the control by disconnecting its associated plug.

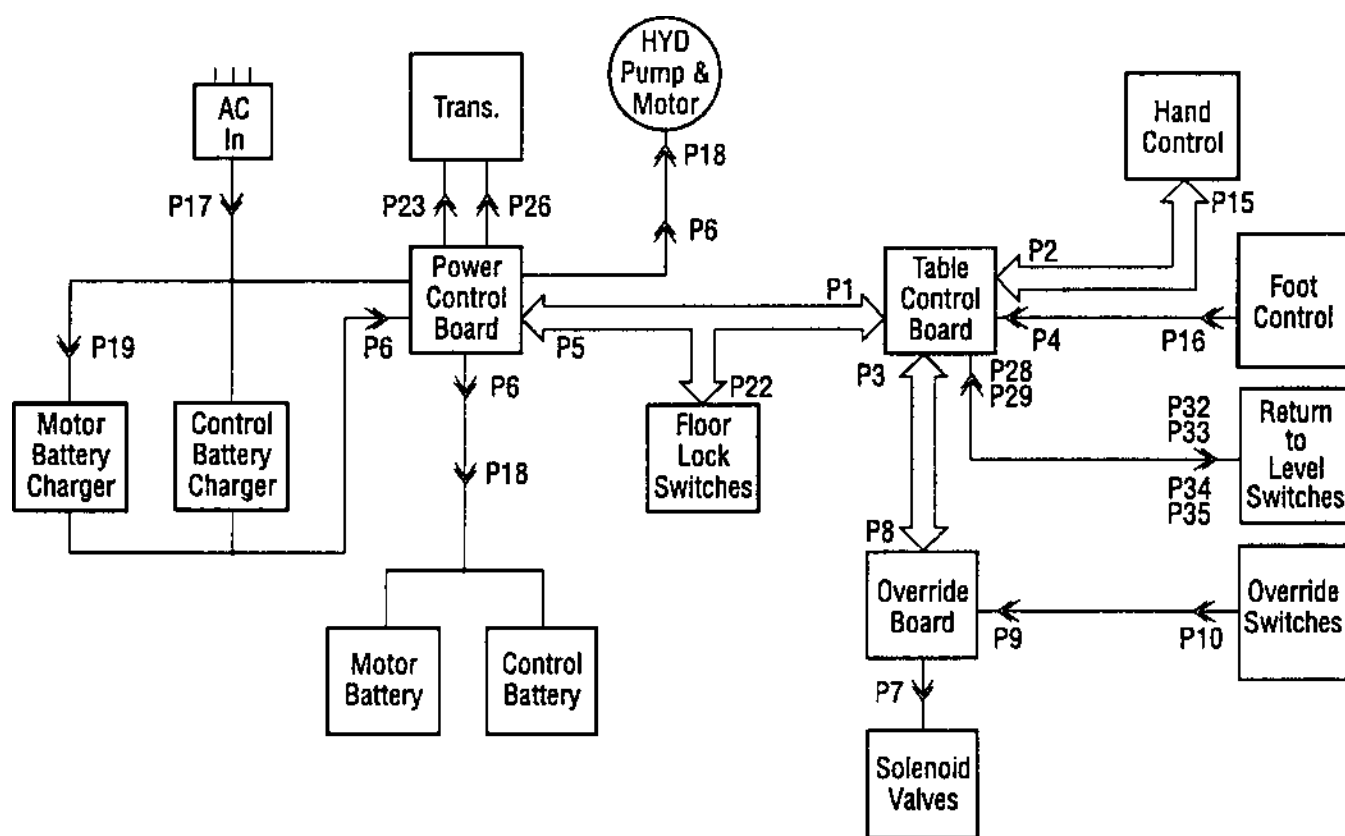


Figure 7.1 - Quantum 3080 Table Block Diagram
(see electrical schematics for more detailed information)

TABLE 7-1.ELECTRICAL SYSTEM TROUBLESHOOTING

Problem	Symptom/Cause	Remedy	Where to Find
1. Table cannot be turned on by hand control	1. Check operation using override switches.	1) Proceed to Problem 2 if no operation.	
	2. Listen for operation of CR3 in power-control assembly when ON/OFF switches are activated.	1) Check continuity of ON circuit from hand control to power control assembly. Replace hand control or repair open wire. 2) Check for 24 VDC on P1-6 and P1-9. Replace power control PC board if no voltage.	System Schematic Sec. 8.8.4
	3. Check for 5 VDC on table control PC board.	1) Check P5/P1 cable continuity. Repair or replace cable. 2) Replace table control PC board.	System Schematic Sec 8.4.1
2. No override switch operation with line cord plugged in.	1. Check F1 and F2 line fuses.	1) Replace fuses.	Sec. 4.5.2
	2. Check CB1.	1) Reset circuit breaker.	Sec. 4.5.1
	3. Check for 24 VDC across P6-2 and P6-13.	1) Replace power control PC board.	Sec. 8.8.4
	4. Check for 24 VDC at hydraulic pump motor terminal board with a switch activated.	1) Repair or replace pump meter if voltage is present.	Fig. 9.4
	5. Check for "E motor on signal" at P5-15 with a switch activated. Should be at DC ground potential.	1) Replace power control PC board if signal is present.	Sec. 8.4.4
	6. Check for 24 VDC solenoid coil voltage at P5-1.	1) Replace power control PC board if no voltage is present.	Sec. 8.4.4
	7. Check P8 and P5 for continuity or loose plugs.	1) Repair or replace cable.	
	8. Check override switches for continuity.	1) Replace override switch board.	Sec. 8.4.2
	9. Check P9/P10 cable for continuity or loose plugs or pins	1) Repair or replace cable. 2) Replace override control board.	Sec. 8.4.3
3. No override switch operation when line cord is not plugged in.	1. Check for operation when line cord is plugged in.	1) See Problem 2.	
	2. Check control and motor battery voltages.	1) Charge batteries by plugging the line cord. 2) Proceed to Problem 4.	Sec. 4.6
	3. Check the wiring and cable plugs between batteries and power control PC board.	1) Repair cable. 2) Replace power control PC board.	Sec. 8.8.4



TABLE 7-1.ELECTRICAL SYSTEM TROUBLESHOOTING (continued)

Problem	Symptom/Cause	Remedy	Where to Find
4. Batteries will not charge; low battery or depleted battery signal on hand control	1. Check line fuses F1 and F2.	1) Replace fuse(s).	Sec. 4.5.2
	2. Check the charger line fuses F3 and F4 (battery table only)	1) Replace fuse(s).	Sec. 4.5.2
	3. Check the charger circuit breakers CB 3 (control), CB4 (motor) and CB2 (motor battery).	1) Reset circuit breaker.	Sec. 4.5.1
	4. Check for +24 VDC at charger output. For isolation, disconnect the battery prior to measuring.	1) Replace battery charger.	Sec. 8.6
	5. Check all cables between the batteries and the charger.	1) Replace batteries. 2) Replace power control PC board.	Sec. 8.4.4
	6. Check for charger voltage on wires to the battery. For isolation, disconnect the battery prior to measuring.	1) Replace power control PC board.	Sec. 8.4.4
5. No "AC ON" light on hand control when line cord is plugged in.	1. Check for battery charger voltage(s).	1) See Problem 4.	
	2. Check for 24 VAC (transformer secondary) across P6-9 and P6-10).	1) Reset CB1. 2) Replace transformer. 3) Replace power control PC board.	Sec. 4.5.1 Sec. 8.7 Sec. 8.4.4
	3. Check for 0 VDC (DC ground potential) at P5-6 or P1-21.	1) Replace power-control PC board.	Sec. 8.4.4
	4. Check P1/P5 cable for continuity.	1) Replace table-control PC board.	Sec. 8.4.1
6. "AC ON" light will not go off when line cord is unplugged.	1. Disconnect wire #69 at P5-6 or P1-21.	1) If light goes off, replace power control PC board. 2) If light stays on, replace table control PC board.	Sec. 8.4.4 Sec. 8.4.1
7. Floor-lock "LOCK" light will not come on.	1. Check LS1 and LS2 switch adjustment on back locking legs.	1) Adjust switches.	
	2. Check the solder joints at microswitch terminals.	1) Resolder as necessary.	
	3. Carefully ground (DC ground) wire #82 at P27-1 to simulate that floor locks are locked.	1) Check for continuity between P1-20 and P27-1.	System Schematic
	4. Check at P1-20.	1) Replace the table control PC board if "LOCK" light did not come on.	Sec. 8.4.1

TABLE 7-1.ELECTRICAL TROUBLESHOOTING (continued)

Problem	Symptom/Cause	Remedy	Where to Find
8. Table will not raise with hand control, pump runs.	1. Check LS5 (raise) limit switch is energized if unit is at other than full height.	1) Adjust or replace switch assembly.	Sec. 5.11
9. No flex or reverse Trendelenberg w/hand control.	1. Seat limit switch (LS3) is defective, stuck or out of adjustment.	1) Adjust or replace switch assembly. 2) Replace rubber boot.	Sec. 5.11
10. No flex or Trendelenberg w/hand control.	1. Back limit switch (LS4) shorted, stuck closed, or out of adjustment.	1) Adjust or replace switch assembly. 2) Replace rubber boot.	Sec. 5.11
11. Green "ON" LED flashing.	1. Optional foot control switch was actuated when hand control switched ON; control logic error disables foot control functions.	1) Turn hand control OFF, then ON to reset controls.	Table 3-1
	2. Faulty foot control - foot control function is disabled.	1) Replace foot control.	
12. Failure of R/L.			
a. Return to level actuated no motion.	1. P28 & P29 connectors. 2. P31-32 connectors. 3. P33, 34, 35, 36 connectors.	1) Assure all are secure.	Refer to Electrical Schematic
b. One section continues past level.	1. Short in level switch.	1) Test with ohmmeter. Replace if necessary.	Refer to Electrical Schematic
c. One section not at level but does not move to level.	1. Open level switch.	1) Test with ohmmeter. Replace if necessary.	Refer to Electrical Schematic

NOTE (for 12.b and c.): If leg section; whole assembly P-136807-731 must be replaced and readjusted as per Section 8.15.

TABLE 7-2. BATTERY DIAGNOSTICS

Battery	Low Battery LED Status	
	On	Flashing
Motor	22.7 VDC	21.6 VDC
Control	23.6 VDC	22.7 VDC



TABLE 7-3. HAND CONTROL DIAGNOSTICS CHART

Indication	Condition	Corrective Action
Control ON - Green AC LED and red BATTERY LED flashing.	AC power connected, low or discharged batteries.	Charge batteries.
Control ON - Green BATTERY LED on and red BATTERY LED flashing.	Battery Operation: Low or discharged batteries - If discharged, control shutdown after 3-1/2 min. when table in use, or after 30 sec. if condition exists at power-up.	Charge batteries.
Control ON - Green BATTERY LED (only) on when table plugged into AC receptacle.	Battery level acceptable; faulty battery charger or power circuit.	Check AC power cord - replace if necessary. Check fuses F1 and F2 - replace if necessary. Reset circuit breaker CB-3. Reset circuit breaker CB-4.
All green and red LEDs flashing.	No communication between table control and hand control.	Check hand control connection. Replace hand control if necessary.
Green "ON" LED flashing.	Optional foot control switch was actuated when hand control switched ON; control logic error disables foot control functions. Faulty foot control - foot control function is disabled.	Turn hand control OFF - then ON to reset controls. Replace foot control.
All LEDs go off.	Hand control unplugged while table control ON - control automatically shuts off after one min. Line Powered Table, AC power off - control automatically shuts off six hours after last function selected. Battery Powered Table, floor locks off - control automatically shuts off 30 min. after last function selected. Battery Powered Table, AC power off - control automatically shuts off 24 hours after last function selected.	Reconnect hand control. Reconnect AC power. Activate floor locks. Reconnect AC power.
Green AC LED flashing.	Faulty foot control - foot control function is disabled.	Replace foot control as outlined in Section 3.

7.4 ELECTRICAL SCHEMATICS

The following electrical schematics which should be used in conjunction with Table 4-1, Electrical Troubleshooting Chart, to understand electrical system operation.

		TABLE TYPE
• SYSTEM SCHEMATIC - 3080 RC TABLE (P-146653-763)	Part 1 of 3	-04
	Part 2 of 3	-04
	Part 3 of 3	-04
• SYSTEM SCHEMATIC - 3080 RL/SP TABLE (P-146655-469)	Part 1 of 3	-04
	Part 2 of 3	-04
	Part 3 of 3	-04
• POWER CONTROL SCHEMATIC (P-146653-761)	Part 1 of 1	-04
• POWER CONTROL BOARD ASSEMBLY (P-146653-764)	Part 1 of 1	BOTH
• OVERRIDE SWITCH SCHEMATIC (P-146653-772)	Part 1 of 1	-04
• OVERRIDE CONTROL BOARD ASSEMBLY (P-146653-773)	Part 1 of 1	-04
• 3080 TABLE CONTROL BOARD ASSEMBLY (P-146655-473)	Part 1 of 4	BOTH
	Part 2 of 4	BOTH
	Part 3 of 4	BOTH
• TABLE CONTROL SCHEMATIC - 3080 RC TABLE (P-146653-534)	Part 1 of 2	BOTH
	Part 2 of 2	BOTH
• HAND CONTROL SCHEMATIC - PRE '92 (P-146653-533)	Part 1 of 1	-04
• HAND CONTROL SCHEMATIC - POST '92 (P-141210-172)	Part 1 of 2	BOTH
	Part 2 of 2	BOTH
• OPTIONAL FOOT CONTROL ASSEMBLY (P-755716-207)	Part 1 of 1	BOTH



WARNING!



TABLE FAILURE HAZARD—Repairs and adjustments must be performed only by experienced personnel, fully acquainted with this equipment. Maintenance done by inexperienced, unqualified personnel or installation of unauthorized parts could cause personal injury, invalidate the warranty, or result in costly damage.

This section provides procedures for removing assemblies and detail parts from the table. Reassembly is essentially the reverse of disassembly. Refer to the exploded views (in Section 9), as indicated, to identify parts discussed. After replacing a part, perform the appropriate inspection and maintenance procedures. Always perform applicable testing/adjustments after replacing hydraulic components.

8.1 CONTAMINATION CONTROL ASPECTS OF HYDRAULIC FIELD SERVICE

To prevent contamination from entering the hydraulic system, it is imperative that all possible care be taken during field hydraulic servicing. The system is designed to maintain oil and component cleanliness during normal operation. When any hydraulic line or component is opened, the system is vulnerable to the entrance of contaminants (i.e., solid particles). Average particle sizes in the oil are normally about 25 microns, or 0.001 inches. Some components may fail in a hazardous way if subjected to particles greater than 100 microns, or 0.004 inches.

It is evident that precautions must be taken when servicing the hydraulic system. Working in the field is not the ideal situation, but being aware of the need for maintaining system cleanliness, using common sense and good

practices, and being dedicated to contamination control should lead to success.

8.1.1 Work Place

The OR would be the ideal place to perform hydraulic service, but a maintenance area or some other "back room" is the more probable location. Avoid, at all costs, working in or next to a room where any woodworking is carried out. Almost as bad is an area where metal work, especially grinding, is done. The airborne particles generated by these or other similar operations are devastating and uncontrollable. If you have no choice, at least insure that no such activities have been performed there for several hours and that none will occur during servicing.

Try to work in a place with no nearby doors through which people will be continually passing. The less people-traffic around you, the better. Stay away from heating and cooling vents that also put particulates into the air.

8.1.2 Tools

Tools, gauges, hydraulic plugs, caps, etc., must be extremely clean during servicing. Clean tools with a lint-free cloth if possible. Hands and fingernails must also be clean when handling hydraulics. Scrub fingernails with a brush.

Always place tools and parts on a clean surface as work is being done. And, of course, no smoking, eating or drinking when working with hydraulics.

8.1.3 General Procedures

Wipe all components to be serviced, and areas adjacent to them, with a lint-free cloth.

- **Breaking connections** - If the connection is to remain broken for

any length of time, both ends of the connection must be plugged or capped with clean parts. If this is impractical, at least cover the open port with a lint-free cloth. A rubber band can be used to hold cloth in place.

- **Removing components** - When a component is removed, place it on, and cover it with, a lint-free towel.
- **Handling parts** - Try to handle all hydraulic components by touching only those surfaces which do not interact with the hydraulic system oil.
- **Assembling** - Examine all surfaces that come in contact with the hydraulic system oil (wetted surfaces). Any visible particles (i.e., 0.002 inch or more in diameter) must be removed. Also examine o-rings and o-ring seats for scratches and/or tears, as well as contamination.

Be careful that any critical surfaces do not unnecessarily touch anything during assembly.

Be sure to torque all fitting, valves, etc., per specifications.

- **Completing work** - Clean the external surfaces of the work area as before. Any leaks will be more easily detected if all areas are clean before checking.

When the work is complete, check that the table functions normally. . . not only the function that was repaired, but all functions.

8.2 SHROUD REMOVAL/RE-PLACEMENT

8.2.1 Removal (see Fig. 9-1 unless otherwise noted)

Important: Removing the shroud may dislodge the P9/P10 cable. After shroud is removed, check that this cable is still securely installed.



1. Lower table to lowest position.
2. Remove four cap hex sockethead screws (#5) securing upper shroud (#4) to shroud cap assembly (#1, Fig. 9-11).
3. Lower shroud pieces.
4. Each column shroud (#2, 3 and 4) consists of two pieces that snap together. To remove, slip end of flat-head screwdriver into seam slots and pry pieces apart. Lift the parts away from table column and set aside. Repeat this procedure for each column shroud.
5. Raise table to maximum height.
6. The base shroud (#1) is fastened together by two screws (#6) at the top (front and back), and two spring catches at the bottom (front and back).

Remove the two screws, then reach inside shroud and unfasten both spring catches.
7. Remove the front half of base shroud.
8. Remove ground wire (#13, Fig. 9-24) attached to back half of base shroud assembly by unscrewing the 3/8" nut from weld stud.
9. Remove back half of base shroud.

8.2.2 Replacement (see Fig. 9-1)

1. Raise table to its maximum height.



CAUTION



To prevent rubber bumpers from being cut off, replace base shroud pieces carefully and evenly.

2. Replace the back half of base shroud and reconnect ground wire to weld stud.
3. Make sure the manual foot pedal is in DOWN position and replace front half of base shroud.
4. Check that front and back pieces are even, then fasten spring catches. Reattach screws at top of joining

seam (front and back).

5. Lower table to lowest position.
6. Replace the bottom intermediate (#2) shroud pieces, snapping them together evenly around the column. Then replace the top intermediate (#3) shroud pieces, snapping them together evenly around bottom intermediate shroud.
7. Replace the upper (#4) shroud pieces, snapping them together evenly around top intermediate shroud.
8. Raise upper shroud and fasten in place with the four screws (#5) removed previously.
9. Raise table half-way up. Check to be sure that interlocks between shroud pieces (top and bottom) are connected.
10. To ensure proper adjustment of shroud sections, apply hand pressure to the left side of bottom base cover (foot end). Shroud pieces will self adjust.
11. Raise and lower the table to make sure the shroud sections function freely, without binding.

8.2.3 Base Shroud Adjustment

Follow this procedure to position the base shroud on the base casting to provide the necessary clearance between column components and base shroud.

1. If replacing the bumpers, apply Loctite 222 to the threads and assemble into the base casting as shown in Figure 8-1. Bumpers 1 and 2 should protrude $5/16" \pm 1/32"$ from the casting, and the other three should be flush with the casting.

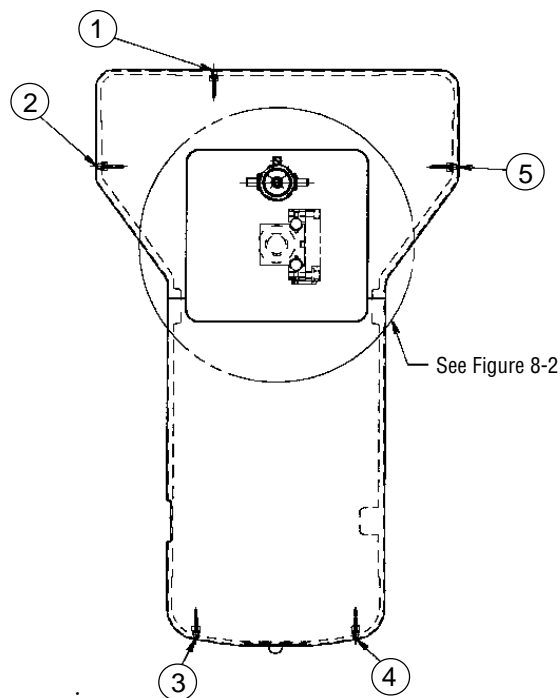


Figure 8-1. Bumper Positioning

2. Position base shroud onto base with shroud in contact with bumpers 1 and 2.
3. Raise the tabletop to its maximum height. Articulate seat section to its maximum UP position (use TREND and REFLEX functions) and articulate tabletop to its maximum RIGHT SIDE TILT position.
4. Lower tabletop until lower end of seat cylinder is just below the upper edge of the shroud. The minimum clearance between the seat cylinder (retract port block) and the shroud should be $15/32"$ on the left side and $5/32"$ on the foot end as shown in Figure 8-2. If either (or both) of these dimensions is less than the minimum, increase the clearance by increasing the projection of the bumpers.
5. Articulate tabletop from full RIGHT SIDE TILT to full LEFT SIDE TILT, observing the clearance between the seat cylinder and the shroud. The minimum clear-

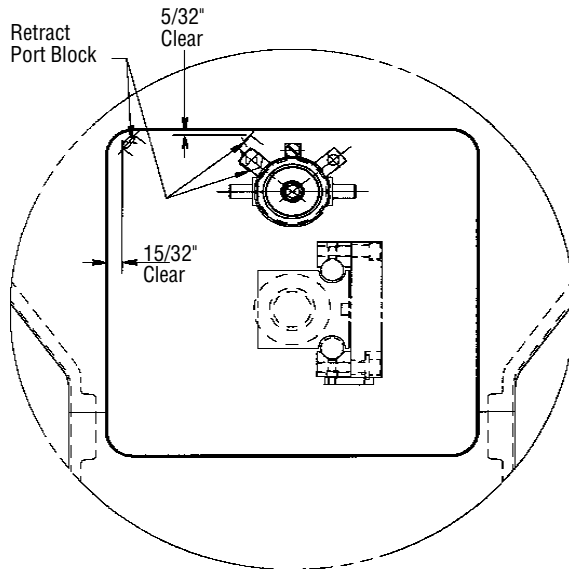


Figure 8-2. Minimum Seat Cylinder/Base Shroud Clearances

ance should never be less than $5/32$ ". Adjust bumper 1 if necessary.

6. The projection of bumpers 1 and 2 from the base casting is now fixed. Increase the projection of bumpers 3, 4 and 5 until they are snug against the shroud.

8.3 HYDRAULIC VALVE REPAIR/REPLACEMENT

8.3.1 Cartridge Valves

There are 15 cartridge valves on the column and two on the base. See Figure 8-3 for valve function.

Important: Removing the valve cartridge causes some hydraulic fluid leakage. Have a lint-free cloth available to catch any leakage.

Removal

1. Remove shroud as described in Section 7.2.

CAUTION

When removing raise/lower cartridges it is important to support the raise/lower mechanism.

2. Raise table to the highest position.
3. To support the raise/lower mechanism, insert a screwdriver through the access hole at back of column. Slowly lower the table until it contacts screwdriver (stop).
4. Unplug spade terminal attached to valve.
5. Remove hex nut holding coil in place.
6. Remove coil.
7. Using a $7/8$ " deep socket wrench, loosen valve cartridge. With the lint-free cloth under cartridge to catch any leakage, turn the cartridge by hand and slide it out of the valve manifold.

CAUTION

Do not use cloth to wipe inside of the valve manifold.

8. Wipe up any fluid spillage with a lint-free cloth.

Replacement

CAUTION

Be careful not to damage o-rings and/or cartridge bodies during re-assembly.

1. Insert a new valve cartridge and tighten to 170 ± 10 in/lbs of torque.
2. Replace the coil.
3. Replace and tighten the hex nut using 27 ± 3 in/lbs of torque.
4. Reattach wire plug, making sure that the spade terminal is properly installed into the coil.
5. Raise the table slightly and remove the screwdriver used as a stop.

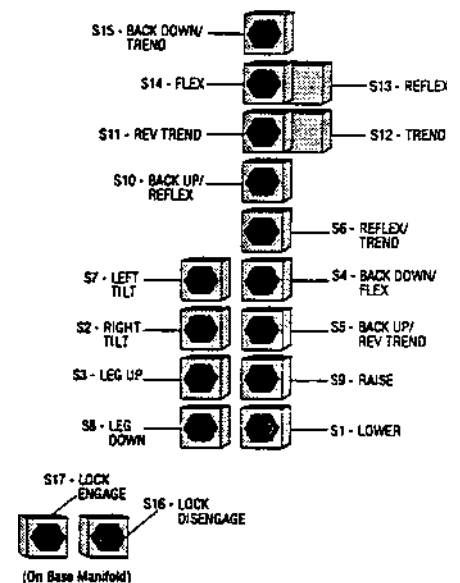


Figure 8-3. Valve Functions



6. Check the function of the valve which was replaced to make sure it works smoothly (see Figure 8-3).

8.3.2 Valves in Fittings

Hold a lint-free cloth under fittings when loosening and removing. Use a back-up wrench when loosening or tightening fittings. **Be careful of O-rings.**

• A-Block Fittings

1. Remove shroud as described in Section 8.2.
2. Raise table to highest position.
3. To support the raise/lower mechanism, insert a screwdriver through access hole at back of column. Slowly lower table until it contacts screwdriver (stop).
4. Disconnect hydraulic hose from valve in fitting.

Note: If hydraulic hose is metal, free (loosen) the other end of hose and swing it out of way.

5. Loosen lock nut on SAE fitting (where valve-in-fitting) connects to manifold block.
6. Remove valve-in-fitting.
7. Install new fitting; **make all connections.**

• B-Block Fittings

Note: These valves must be removed from the bottom up.

1. Remove shroud as described in Section 8.2.
2. Raise table to highest position.
3. To support the raise/lower mechanism, insert a screwdriver through access hole at back of column. Slowly lower table until it contacts screwdriver (stop).
4. Remove the table control PC board assembly (#27, Fig. 9-3).
5. Disconnect hydraulic hose from valve in fitting.
6. Loosen lock nut on SAE fitting (where valve-in-fitting) connects to manifold block.

7. Remove valve-in-fitting.
8. Install new fitting; make all connections.

8.4 PC BOARD REPLACEMENT

8.4.1 Table Control PC Board Assembly (see Fig. 9-3 unless otherwise noted)

1. Lower table to lowest position.
2. Remove four cap hex sockethead screws (#5, Fig. 9-1) securing upper shroud (#4, Fig. 9-1) to shroud cap assembly.
3. Lower shroud pieces.
4. Raise table to highest position and put it in full left-side tilt to gain access to top screw (#16) holding PC board assembly (#27) in place.
5. Unplug cable plugs from bottom of PC board assembly.
6. Remove cable ties from side and bottom of PC board assembly.

Note: Washers are installed in sequence. Before removing screws holding PC board assembly in place, note sequence and reinstall in same manner.

7. Remove the top screw (#16), wire shield (#30) and washers (#26, 28 and 29) holding PC board to column.
8. Remove the bottom screw (#16) and washers (#26, 28 and 29) holding PC board to column.
9. Remove PC board.
10. Attach new **PC board** assembly to column.

Note: Plugs P28 and P29 look alike but are not interchangeable. Check the cable indicators to make sure they are plugged into PC board properly.

11. Attach cable plugs.
12. Attach all cable ties to the board assembly, side and bottom.

8.4.2 Override Switch PC Board Assembly (see Fig. 9-12 unless otherwise noted)

1. Lower table to lowest position.
2. Remove four cap hex sockethead screws (#5, Fig. 9-1) securing upper shroud (#4, Fig. 9-1) to shroud cap assembly.
3. Lower shroud pieces.
4. Raise table to highest position.
5. Unscrew and remove the red toggle boot seal (#10) and the four grey toggle boot seals (#11) holding switch assembly on skirt.
6. Remove the five nuts holding switch assembly on skirt.
7. Back switch assembly out of holder, being careful not to lose lockwashers.
8. Install new assembly in reverse order, making sure lockwashers are in place between switch plate and skirt.

8.4.3 Override Control PC Board Assembly (see Fig. 9-3 unless otherwise noted)

1. Lower table to lowest position.
2. Remove four cap hex sockethead screws (#5, Fig. 9-1) securing upper shroud (#4, Fig. 9-1) to shroud cap assembly.
3. Lower shroud pieces.
4. Raise table to highest position.
5. Remove P9/P10 cable assembly.
6. Remove four screws (#45) and lockwashers (#46) holding override box assembly (#44) to saddle.
6. Disconnect P8 and P9 cable assemblies.
7. Remove assembly from table.
8. Install new assembly in reverse order.

8.4.4 Power Control PC Board

8.4.4 Power Control PC Board (see Fig. 9-4 unless otherwise noted)

1. Remove shroud as described in Section 8.2.



WARNING!

SHOCK HAZARD - Before proceeding, disconnect all power sources, i.e., wall plug, control battery and (if a battery-operated table) the motor battery positive terminal.

2. Remove two screws (#41) and lockwashers (#42) holding power supply assembly cover in place.

The power control PC board (#43) is on the underside of this cover.

3. Lift cover and tilt back.
4. Disconnect plugs P5 and P6.
5. Turn cover over. Carefully slip PC board off nylon standoffs, five places.
6. Press new board onto standoffs, making sure board is firmly snapped in place.
7. Reattach plugs P5 and P6.
8. Reattach cover to power supply assembly using two screws (#41) and lockwashers (#42).

8.5 POWER SUPPLY ASSEMBLY REPLACEMENT (See Fig. 9-4 unless otherwise noted)

1. Remove shroud as described in Section 8.2.



WARNING!

SHOCK HAZARD - Before proceeding, disconnect all power sources, i.e., wall plug, control battery and (if a battery-operated table) the motor battery positive terminal.

2. Remove two screws (#41) and lockwashers (#42) holding power supply assembly cover in place.
3. Lift cover and tilt back.
4. Disconnect plugs P5 and P6 and set cover aside.
5. Remove two screws (#39) and lockwashers (#38) on inside of module, holding module to base.
6. Disconnect all electrical wires to module (P17, P18, P19, P20, and P23).
7. Lift module off base.

Note: When reinstalling P6, make sure no wires have pulled out of plug. Check all wire connections.



CAUTION!

When reinstalling power supply assembly, be aware of table-lock microswitch wires (blue twisted pair wire numbers 80 and 81; #109, Fig. 9-24B). Handle carefully to avoid breaking solder connections.

8. Make wire connections and reattach module to base.
9. Replace cover and fasten in place.

8.6 MOTOR BATTERY CHARGER MODULE REPLACEMENT (Battery-Operated Tables Only)

1. Remove shroud as described in Section 8.2.



WARNING!

SHOCK HAZARD - Before proceeding, disconnect all power sources, i.e., wall plug, control battery and (if a battery-operated table) the motor battery positive terminal.

2. Remove power supply assembly per instructions in Section 8.5 to gain access to P19 and P20.

3. Remove the two sems screws (#9, Fig. 9-2) and lockwashers (#11, Fig. 9-2) holding battery charger module in place.
4. Carefully move cable assemblies out of the way.
5. Disconnect P19, P20 and P21.
6. Lift module up and out of table base, being careful not to dislodge any wire connections.
7. Make wire connections (P19, P20 and P21) from new module.
8. Lower module into table base.
9. Secure module in place with two sems screws (#9, Fig. 9-2) and lockwashers (#11, Fig. 9-2).



CAUTION!

When reinstalling power supply assembly, be aware of table-lock microswitch wires (blue twisted pair wire numbers 80 and 81; #109, Fig. 9-24B). Handle carefully to avoid breaking solder connections.

10. Replace power supply module per instructions in Section 8.5.

8.7 TRANSFORMER REPLACEMENT (see Figure 9-4)

1. Remove shroud as described in Section 8.2.



WARNING!

SHOCK HAZARD - Before proceeding, disconnect all power sources, i.e., wall plug, control battery and (if a battery-operated table) the motor battery positive terminal.

2. Remove two screws (#39, Fig. 9-4) and lockwashers (#38, Fig. 9-4) holding transformer (#10) to table base.
3. Disconnect P19, P20 and P21.



4. If a battery-operated table, remove battery charger module per instructions in Section 8.5.
5. Disconnect P26 and P23.
6. Carefully lift transformer **up and** off of table base.

Important: When installing new transformer, make sure no connectors become lodged between hydraulic hoses.

7. Place new transformer on table base.

Note: To orient transformer properly, be sure P23 connection is facing the power supply assembly.



CAUTION!



Handle wire cables carefully, making sure they don't become hung up in other components, and that wires don't pull out of plugs.

8. Connect all cables.
9. If a battery-operated table, reinstall battery charger module.

8.8 REPLACEMENT PROCEDURE - HYDRAULIC CYLINDERS

Note: Hydraulic cylinders are self-bleeding. They will purge themselves of air after being operated to their extremes five to six times.



CAUTION!



Take care when removing and installing cylinders. Make sure cylinder rods remain clean and undamaged. Nicks and/or scratches will eventually cause leakage.

8.8.1 Floor Lock - Foot End, Right (looking at base from foot end)

- **Removal** (see Figure 9-3 unless otherwise noted)
- 1. Remove shroud as described in Section 8.2.

2. Unlock (raise) floor locks so that there is no pressure on them.
3. Disconnect hose fitting (face seal) from the el on the retract side of locking cylinder (#32).

Note: Clean outside of fitting with dust-removing spray. Install clean cap on end of hose to prevent contamination.

4. Disconnect hose fitting on the extend side of locking cylinder.
5. Remove tie wrap from hoses and lift hoses away from cylinder.
6. Use a retaining-ring pliers and remove retaining ring (#36) from lock-cylinder pivot pin.
7. Use an ignition wrench to remove pivot pin (#35).

Note: Pivot pin is installed with Loctite, it may be hard to remove.

8. Unscrew cylinder rod from shaft and link assembly (#13, Fig 9-4).
9. Lift cylinder away from base.
10. Remove SAE fittings from cylinder.

Note: Fittings are not interchangeable. Note position before removing so that they don't get mixed up. The valve-in-fitting (has restrictor at SAE threaded end) goes on the port marked E (extend).

11. Wipe fittings and put them on a lint-free cloth until reuse.

- **Replacement** (see Fig. 9-3 unless otherwise noted)

1. Remove new cylinder from plastic bag and install SAE fittings on new cylinder. Install fittings loosely, orienting them as closely as possible to correct position. Don't tighten them down.
2. Tighten cylinder rod into shaft and link assembly (#13, Fig. 9-4). Reinstall pivot pin (#35) and replace retaining ring (#36).
3. Reattach hoses. Using a 5/8" wrench, tighten retaining nuts on SAE fittings.
4. Operate floor lock a couple of times and check for leaks.

8.8.2 Floor Lock - Foot-End, Left (looking at base from foot end)

- **Removal** (see Fig. 9-3 unless otherwise noted)

1. Detach hydraulic hoses at face-seal fittings of hydraulic cylinder (#33), noting which hoses are attached to which fittings.
2. Remove retaining ring (#36) from pivot pin (#35).
3. Remove pivot pin.
4. Unscrew cylinder rod from shaft and link assembly (#14, Fig. 9-4).

Note: It's a tight fit and put in with Loctite. Keep turning (standard right-hand thread).

5. Remove cylinder from base.
6. Remove SAE fittings from cylinder.

- **Replacement** (see Fig. 9-3 unless otherwise noted)

1. Remove new cylinder from plastic bag and install SAE fittings on new cylinder. Install fittings loosely, orienting them as closely as possible to correct position. Don't tighten them down.
2. Tighten cylinder rod into shaft and link assembly (#14, Fig. 9-4). Reinstall pivot pin (#35) and replace retaining ring (#36).
3. Reattach hoses. Using a 5/8" wrench, tighten retaining nuts on SAE fittings.
4. Operate floor lock a couple of times and check for leaks.

8.8.3 Floor Lock - Head End (see Fig. 9-3 unless otherwise noted)

- **Removal**

1. To remove this cylinder (#32) it is necessary to remove counterweight (#1, Fig. 9-2) from table base.

2. Remove two screws and lockwashers (#2 and 3, Fig. 9-2) holding counterweight to table base.



WARNING!

CRUSHING HAZARD - Counterweight weighs approximately 90 lbs. Grip tightly. .do not drop on table base or toes or fingers.

3. Remove counterweight from table base.

Note: This floor lock has no microswitch, but cam override assembly still needs to be adjusted.

4. Remove hydraulic hoses (face seals) from cylinder.
5. Remove retaining ring (#36) from pivot pin (#35).
6. Remove pivot pin.
7. Unscrew cylinder rod from shaft and link assembly (#14, Fig. 9-4).

Note: It's a tight fit and put in with Loctite. Keep turning (standard right-hand thread).

8. Remove cylinder from base.
9. Remove SAE fittings from cylinder.

• Replacement

1. Remove new cylinder from plastic bag and install SAE fittings on new cylinder. Install fittings loosely, orienting them as closely as possible to correct position. Don't tighten them down.
2. Tighten cylinder rod into shaft and link assembly (#14, Fig. 9-4). Reinstall pivot pin (#35) and replace retaining ring (#36).
3. Reattach hoses. Using a 5/8" wrench, tighten retaining nuts on SAE fittings.
4. Operate floor lock a couple of times and check for leaks.

8.8.4 Back Section Cylinders



CAUTION!



Do not remove back section cylinder without supporting back section. Limit switch will be damaged if back section drops too much.

• Removal

1. Insert a 2x4 between back and seat section and lower back section until board is wedged in place.
2. Remove back section tabletop.
3. Remove side rail.
4. Remove kidney-bridge linkage as follows:
 - a. Tap out groove pin (#38, Fig. 9-14) from universal joint (#19, Fig. 9-16) connecting kidney bridge handle shaft to kidney bridge shaft assembly.
 - b. Remove two roundhead screws and lockwashers (#37 and 36, Fig. 9-14) holding brass support block (#18, Fig. 9-16) in place.
 - c. Remove two sockethead cap screws and lockwashers (#34 and 35, Fig. 9-14) from the kidney bridge linkage block (#16, Fig. 9-16).
 - d. Lift linkage assembly up and out of the way.
5. Remove set screw (#28, Fig. 9-14) from underside of saddle block.
6. Remove pivot pin (#27, Fig. 9-14) from saddle block.
7. Remove two sockethead cap screws and lockwashers (#7 and 8, Fig. 9-15) holding cylinder bracket (#4, 9-15) to back section casting.
8. Remove ground lead.
9. Remove hex socket buttonhead screw (#17, Fig. 9-15) from hose bracket (#16, Fig. 9-15).
10. Disconnect and cap all three hydraulic hoses, marking them for reattachment.
11. Lift cylinder up and out of casting.

12. Wipe up any fluid that may have leaked from hoses/fittings.

• Replacement

1. Place new cylinder into back section casting.
2. Attach all three hoses, making sure hoses are connected to appropriate port as marked during removal.

Note: When attaching hoses, hold nut on hard line coming from cylinder and tighten fitting. Do not overtighten.

3. Reattach hose bracket.
4. Replace two screws and lockwashers (#7 and 8, Fig. 9-15) attaching cylinder to back section casting.

Note: New cylinder is retracted. To extend cylinder rod RAISE function must be activated.

5. Turn power on. Raise back section slightly to extend new cylinder rod until hole in clevis lines up with hole in saddle block.
6. Insert pivot pin (#27, Fig. 9-14). (It may be necessary to jiggle back section slightly.) Don't force pin, it should slide in.
7. Replace set screw (#28, Fig. 9-14).
8. Remove 2x4 wedge and operate raise/lower function to check cylinder for leaks.
9. Reinstall ground wire, kidney bridge linkage and side rail.

Procedure for other back-section cylinder is the same, except there is no kidney bridge linkage.

8.8.5 Leg Section Cylinders

• Removal

1. Remove seat and leg section tabletops.
2. Remove seat section siderail.
3. Remove two socket flathead screws (#12, Fig. 9-19) from end frame cap.



Note: Do not remove set screw on bottom outside of end frame cap assembly as this will hold pivot pin (#19, Fig. 9-14) to leg assembly after removal.

4. Remove the two set screws on the inside edge of end frame cap assembly, top (#33, Fig. 9-14) and bottom (#20, Fig. 9-14).
5. Using special screw (P-90696-061), screw into hole on inner end-frame cap plate (#11, Fig. 9-19) and turn to loosen cap plate.
6. Remove inner end frame cap plate.
7. Remove the sleeve bearing and thrust washer (#22 and 21, Fig. 9-14) from pin (#19, Fig. 9-14).
8. Pulling outward, remove leg section (with pin attached) from seat section.
9. Tap out top pivot pin (#18, Fig. 9-14) from outside toward inside.
10. Reflex table enough to gain access to two cap hexhead screws (#6, Fig. 9-18) holding cylinder (#2, Fig. 9-18) to seat section casting.
11. Using Chapman set, remove two screws and washers (#6 and 7, Fig. 9-18). Remove shims (#8 and 9, Fig. 9-18).
12. Lower seat section to vertical position.
13. Carefully lift cylinder up and out of seat-section casting.
14. Remove hoses, marking ports for reattachment. Ports are marked on cylinder manifold...mark hoses accordingly.
15. Loosen set screw (#16, Fig. 9-18) on end of cylinder rod.
16. Tap out pivot pin (#15, Fig. 9-18) holding cylinder rod to coupler link (#18, Fig. 9-18).

Note: Before removing coupler link from cylinder, notice orientation of coupler link on rod. . .it must be reinstalled the same way.

17. Loosen set screw (#5, Fig. 9-18) from cylinder rod stop (#17, Fig. 9-18). Remove rod stop, noting posi-

tion for reassembly (i.e., wider, flat side facing cylinder).

• Replacement

1. Install rod stop on rod of new cylinder, making sure that wider, flat side is toward cylinder. Do not tighten set screw at this time. It should be tightened during adjustment.
2. Attach coupler link to cylinder rod, making sure orientation is the same as when removed.
3. Replace pivot pin (#15, Fig. 9-18), making sure flat side of pin is toward set screw (#16, Fig. 9-18) in end of cylinder rod. Tighten set screw.
4. Hand tighten hydraulic hoses in place as marked during removal. Then snug them down.
5. Place hydraulic cylinder in seat section casting.
6. Insert cap hexhead screws and washers (#6 and 7, Fig. 9-18) through seat section casting. Insert shims (#8 and 9, Fig. 18) between casting and cylinder block.
7. Tighten screws into cylinder block using Chapman set.
8. Align hole in input link (#14, Fig. 9-18) with hole in casting. Reinstall pivot pin (#18, Fig. 9-14) through input link and casting.
9. Reattach leg section, making sure pin (#19, Fig. 9-14) is inserted through hole in coupler link. Slip sleeve bearing and thrust washer (#22 and 21, Fig. 9-14) onto pin (#19, Fig. 9-14).
10. Replace end frame inner cap plate (#11, Fig. 9-19) using rubber mallet to snug down to seat section casting.
11. Replace and tighten set screws at top side (#33, Fig. 9-14) and underside (#20, Fig. 9-14) of end-frame cap assembly.
12. Adjust leg section movement and

tighten set screw on locking collar of cylinder.

8.8.6 Seat Section Cylinder (see Fig. 9-11)

• Removal

1. Lower shroud.
2. Place 2x4 between seat section frame and saddle block. Lower table until it just touches 2x4. . .just enough to take pressure off cylinder. . .so that seat frame is resting on 2x4.
3. Remove hydraulic hoses from cylinder (#4), marking for reattachment.
4. Remove sockethead cap screws (#20) from brass pivot mounting pads (#8) (two in each pad).
5. Remove mounting pads from cylinder (notice how they are placed with punch marks toward foot section).
6. Loosen jam nut (#31) holding cylinder rod to cylinder knuckle (#32).
7. Hold cylinder with one hand while unscrewing cylinder rod from knuckle. Once cylinder is loose, lower it down and out of table base.

• Replacement

1. Screw new rod of new cylinder into knuckle.
2. Reattach mounting pads (#8) (with punch marks on pads toward leg section of table).
3. Start screws (#20) into mounting pads.
4. Attach hydraulic hoses, making sure they are connected to correct ports as marked during removal.
5. Lower seat section until mounting pads fit snugly against table frame (underside of skirt). Tighten screws into mounting pads.

8.8.7 Side Tilt Cylinder (see Fig. 9-11 unless otherwise indicated)

• Removal

1. Raise table to highest position.
2. Lower shroud.
3. Put table in full right-side tilt, then in reflex position. Wedge seat section up with a 2x4.
4. Remove screws holding table-control PC board assembly (#27, Fig. 9-3) in place.
5. Remove wire ties on right side of PC board assembly and swing PC board assembly down.
6. Remove hydraulic hoses from seat section cylinder (#4). Cap fittings and mark for reassembly.
7. Remove two sockethead cap screws (#27 and 28) and washers (#25 and 26) holding cylinder bracket (#6) to column.
8. Tap bracket (from behind) to move it off locating pin (#29).
9. Remove two pipe plugs (#18) holding clevis pin (#10) through saddle and cylinder knuckle (#7).
10. Drive clevis pin, from seat section side, through knuckle enough to release side tilt cylinder (#5). Cylinder should now be loose.
- Note: Later models used two short pins.*
11. Carefully pull cylinder down far enough to gain access to hydraulic hoses.
12. Operate tilt function to retract cylinder rod.
13. Remove hoses, marking for reassembly, and cap fittings.
14. Pull cylinder down and away from table, being careful not to pull out any electrical plugs.
15. Remove set screw (#30) holding pivot pin (#24) through bracket and cylinder.

16. Use a large punch to tap pivot pin out of bracket.

Note: Pin is inserted with interference fit, it may be difficult to tap out.

17. Remove SAE el fittings.

• Replacement

1. Attach SAE fittings to new cylinder.
2. Attach bracket (#6) to cylinder. Replace pivot pin (#24), making sure slots in pin face set screw. Replace set screw (#30).
3. Pass both hydraulic hoses under wires.
- Note: Wire bundle to hand and foot controls, wire bundle to seat-section limit switch and two ground wires (two green wires, a black bundle, a grey bundle and a white bundle) must be on outside of hoses.*
4. Attach hydraulic hoses to cylinder.
5. Carefully push hydraulic cylinder up into place.
6. Use rubber mallet to tap cylinder bracket (#6) onto locating pin (#29).
7. Secure cylinder bracket to column using washers (#25 and 26) and two screws (#27 and 28).
8. Operate tilt function to extend cylinder rod until knuckle (#7) is close to saddle and in line with clevis pin hole.
9. Tap clevis pin (#10) through knuckle and other side of saddle frame.
10. Replace pipe plugs (#18).
11. Reattach hydraulic hoses to seat section hydraulic cylinder.
12. Reinstall table-control PC board assembly. Reattach cable ties.

8.9 MANUAL PUMP-PRIMING PROCEDURE (see Fig. 9-7 unless otherwise indicated)

1. Remove hose clamp (#2, Fig. 9-22A) and tube from the reservoir fitting.

2. Use a clean 500 ml wash bottle (or equivalent) of hydraulic oil and fill the tube with oil.

3. Reinsert tube (now filled with fluid) into the reservoir fitting.
4. Pump the foot pump pedal several times. Oil should flow in the tube when the pump pedal is returning. If oil is not flowing, pour hydraulic fluid directly into pump using the following method:
 - a. Remove check valve (#17) from hydraulic fitting (#18).
 - b. Fill pump body (#3) with fluid and reattach check valve.
 - c. Repeat steps 2, 3 and 4.

5. Fasten hose clamp.
6. Pump the pedal repeatedly, noting if oil is flowing through the tube from the reservoir to the pump. If oil is flowing in the tube, continue pumping pedal until it becomes hard to pump and the tube is completely filled with oil.
7. Disconnect electric line to the hydraulic pump motor. Using the hand control and the manual pump, articulate each table function to check its operation.
8. Reconnect electric line to the hydraulic pump motor.

8.10 COLUMN LUBRICATION (See Fig. 9-9)

1. Lower shrouds.
2. Raise table until top of stage block (Ref. "A") is above top of guide shaft (#4).
3. Pour one tablespoon of oil down each slot. This flows to the oiler (#5), lubricating the bearings (#6).

8.11 RESERVOIR FILLING

Note: Use only 3080 table oil (P-764322-636) when adding oil to or refilling reservoir.



1. Remove shrouds as explained in Section 8.2.
2. Raise table to maximum height.
3. Clean area around reservoir cap and then remove cap.
4. Add oil to the "MAX" mark or to UPPER level indicator on decal.
5. Replace cap.

8.12 HYDRAULIC FILTER REPLACEMENT - BASE VALVE ASSEMBLY (See Fig. 9-5)

1. Remove shrouds as explained in Section 8.2.
2. Clean area around filter cap (#2).

Note: Use care and be contamination conscious when working in the open filter cavity.

3. Remove cap and filter (#4).
4. Install new filter and replace cap.

8.13 FIELD RESETTING OF VOLTAGE SWITCHES

Note: This procedure will typically be used by service personnel outside North America.



CAUTION!



Disconnect table from any external AC power source before performing this procedure.

1. Raise tabletop to full height as follows:
 - If battery-powered and operable, use hand control in normal fashion.
 - If electric-powered (or battery-operated and batteries are discharged), use hand control and manual foot pump.
2. Remove shrouds as explained in Section 8.2.

Note: A special allen wrench (P-764322-952) is required to gain access to the voltage plugs.

3. The voltage tap switches (two on electric table; three on battery-operated table) are under switch covers (#13, Fig. 9-2; #49, Fig. 9-4). Use special wrench to remove tamper-proof screws (#12, Fig. 9-2; #48, Fig. 9-4) and switch covers.
4. Change plugs to the proper setting.
5. Replace switch covers and screws.
6. Check that table fuses (F1, F2, F3 and F4 - battery-operated tables only) are of the proper voltage as listed in Table 8-1.
7. Replace table base and column shrouds.

8.14 CONVERSION - ELECTRIC TO BATTERY (see Fig. 9-26 unless otherwise indicated)

Note: Refer to Power Control and Table Electrical Schematics (Section 7) during this procedure.

1. Remove shrouds as explained in Section 8.2.
2. Disconnect line cord and control battery.



WARNING!



ELECTRIC SHOCK HAZARD - P25 may arc as connections are made, to initially charge power supply capacitor C30.

Note: Connect motor batteries through P25 to the wiring harness.

3. Cut and remove existing cable ties (qty. 4) Attach jumper (#4) and cable assembly (#5) to batteries (#1). Then secure existing hose and harnesses with new cable ties (#9).

Note: A special allen wrench (P-764322-952) is required to gain access to the voltage plugs.

4. Set power input selector switch on battery charger module (#2) to the input power line voltage. This setting should be the same as the

power-supply assembly switches.

5. Using special tool, install protective cover (13) with tamper-proof screws (#14).
6. Disconnect existing power-supply assembly (#6, Fig. 9-2).
7. Configure power supply for battery-operated table by removing J1, J2 and J3 and installing J5 (#11) and J4 (use old J1, J2 or J3). . . see view C-C.
8. Install program jumper (#10) as shown in view E-E.
9. Place battery-identification label on power supply assembly cover as indicated.

8.15 3080RL TABLETOP AND BASE ADJUSTMENT PROCEDURE

This adjustment procedure is for the Table Top Assemblies shown on Figures 9-15 and 9-18 and is to be performed on a level floor.

Note: Care should be taken to ensure that the surface finish on the cylinder rods is not damaged during the adjustment procedure.

8.15.1 Lateral Tilt Adjustment



CAUTION!



Before articulating or making any adjustments to the table, be certain that no electrical or hydraulic hoses are subjected to stress or pinching.

1. Articulate table to level position.
2. Articulate table into a fully right side tilt. Using a digital protractor, measure the angle of the right tilt.



CAUTION!



Tilt articulation must be activated while adjusting the cylinder rod to release the brake mechanism. Failure to do this will destroy the cylinder.

TABLE 8-1. VOLTAGE/FUSE MATRIX			
Voltage	Fuse	Rating (amps)	Part Number
100V	F1	6	P-150823-292
	F2	6	P-150823-292
	F3	0.5	P-93909-222
	F4 (bat. only)	1.5	P-93909-223
120V*	F1	6	P-150823-292
	F2	6	P-150823-292
	F3	0.5	P-93909-222
	F4 (bat. only)	1	P-93909-444
220/230/ 240V (IEC)**	F1	4	P-129360-587 (IEC)
	F2	4	P-129360-587 (IEC)
	F3	0.25	P-129360-585 (IEC)
	F4 (bat. only)	0.5	P-129360-586 (IEC)

* Standard North American configuration.

** Requires special fuse-holder knob (P-129360-654).

- If tilt angle is not 18 degrees +/- 2 degrees, adjust angle as follows:

- While pressing the hand control button for right side tilt, use a 5/8" open end wrench and rotate the cylinder shaft until 18 degrees +/- 2 degrees is achieved.

NOTE: If during the adjustment process the cylinder will not turn, position the table into approximately 5 degrees of left tilt and retry the adjustment procedure.

- Articulate the table into full left tilt and measure the degree of tilt. Angle must be 18 degrees +/- 2 degrees. It may be necessary to re-adjust the right tilt to obtain this angle.
- Reinstall the clevis locking plate using the two socket head screws. Make certain the cylinder rod flat is square with the machined step on the clevis. This will secure the side tilt adjustment.

8.15.2 Back Section Adjustment

- The back section's articulation is powered by two hydraulic cylinders; one on the right side and one on the left side. The stroke of the cylinders is fixed and may not be

the same on both sides. This unequal stroke will produce greater articulation on one side than the other side and the cylinders must be adjusted to balance the over travel between the maximum up and down positions. This minimizes the racking or twisting of the back section when it's in the full up or down positions.

- Articulate the back section to its full down position, measure and record the angular position of both the right and left side.
- The cylinder rod should be turned into the clevis (31) to increase the down articulation and out of the clevis to decrease the articulation. One degree change is equal to 1.10 revolution of the rod in the clevis.
- Back the articulation away from its maximum down position approximately five degrees. Make the necessary adjustments based on steps 2. and 3. to give a maximum down position of 25 degrees.
- Repeat step 2. The measured angles must be 25 ± 1 degree and the amount of racking must be 1/2 degree or less. Repeat step 3. if necessary.

- Articulate the back section to its full up position, measure and record the angular position of both the right and left side. The amount of racking must be 1/2 degree or less; if not, adjustments must be made to equalize the amount of racking in the maximum up and down positions.

8.15.3 LS3 - Seat Section Limit Switch

- With the tabletop sections horizontal, manually depress limit switch LS3, mounted to saddle under seat section. Attempt to actuate FLEX. The pump should turn on, but no motion should occur. Repeat for REVERSE TRENDELENBURG.
- With the switch released, actuate the same functions. When motion has started, depress the switch. The pump should stay on and motion should stop.
- Starting with the tabletop horizontal, actuate BACK RAISE at least 10 degrees to insure that the articulation actuates the seat limit switch. Actuate REVERSE TRENDELENBURG until motion stops. Check that the seat limit switch LS3 actually stopped the motion by actuating REVERSE TRENDELENBURG with the override control switches located on the shroud cap. The seat section should move further down by a small amount.
- If limit switch LS3 does not function as described above, check to be sure it is being actuated when seat section is within 0.5 ± 0.3 degrees of its mechanical stop (use REVERSE TRENDELENBURG function). If limit switch requires adjustment, proceed as follows:
 - Position tabletop at maximum RIGHT TILT for access to limit switch. Remove P28 from control board housing box.



Note: The shrouds have to be lowered but not removed to gain access to P28.

- b. Connect P28 to a voltmeter set to read resistance.
- c. Position the tabletop so the seat section is within 0.5 ± 0.3 degrees of mechanical stop and check the switch. If switch is not made, adjust the switch until it is energized.
- d. Using the override switch, position the tabletop to its mechanical stop in REVERSE TRENDELENBURG to make sure the switch does not get damaged.
- e. Remove the voltmeter and reinstall P28 into control board housing box. Level tabletop and actuate REVERSE TRENDELENBURG to check that LS3 stops table motion within 0.5 ± 0.3 degrees of its mechanical stop.

8.15.4 LS4 - Back Section Limit Switch

1. With the tabletop sections horizontal, manually depress the switch mounted to the underside of the back section. Attempt to actuate FLEX. The pump should turn on, but no motions should occur. Repeat for TRENDELENBURG and BACK LOWER.
2. With the switch released, actuate the same functions. When motion has started, depress the switch. The pump should stay on and motion should stop.
3. Starting with the tabletop horizontal, actuate BACK LOWER until motion stops. Check that motion stopped due to the back limit switch by actuating BACK LOWER with the override control switches located on the shroud cap. The back section should move further down by a small amount.

4. If limit switch LS4 does not function as described above, check to be sure it is being actuated when back section is within 0.5 ± 0.3 degrees of its mechanical stop (use TRENDELENBURG function). If the limit switch requires adjustment, proceed as follows:

- a. Remove P29 from control board housing box and connect it to a voltmeter set to read resistance.

Note: The shrouds have to be lowered but not removed to gain access to P29.

- b. Position the tabletop so the table back section is within 0.5 ± 0.3 degrees of its mechanical stop (use TRENDELENBURG function). Tighten limit switch locknut until the voltmeter indicates switch is made. If locknut adjustment range is not adequate, install switch pushbutton extension (P-129360-679) using Loctite RC/609.
- c. Using the override switch position the table to its mechanical stop in TRENDELENBURG and make sure the switch did not get damaged.
- d. Remove continuity tester and reinstall P29 into control board housing box. Level tabletop and actuate TRENDELENBURG function to ensure LS4 stops table motion within 0.5 ± 0.3 degrees of its mechanical stop.

8.15.5 Seat Section Adjustment

1. Articulate the seat section to its full down position, measure and record its angle.
2. The cylinder rod should be turned into the knuckle (17) to increase the down articulation and out of the knuckle to decrease the articulation. One degree change is equal to 1.18 revolution of the rod and the knuckle.

3. Raise the seat section to horizontal or above for ease of adjustment. Loosen the jam nut (32), make the necessary adjustment based on steps 1. and 2. to give a maximum down position of 25 degrees and tighten the jam nut against the knuckle.

4. Repeat step 1. The measured angle must be 25 ± 1 degree. Repeat steps 3. and 4. if necessary.

8.15.6 Leg Section Adjustment

1. The leg section's articulation is powered by two hydraulic cylinders; one on the right side and one on the left side. The stroke of the cylinders is adjustable with cylinder rod stops to provide the same total articulation on each side. The leg section adjustment is made without the top leg board and all angles are measured with respect to the seat section.
2. Articulate the leg section to its full up position using override switches. Measure and record the angle of each leg section frame.
3. The up adjustment is made with shims (37 & 38) between the seat section frame (14) and cap end cylinder clevis. Add shims to increase the angle or remove shims to decrease the angle. 0.010 inches of shim will alter the angle by approximately 1.0 degrees.
4. Loosen the cap screws (40), insert or remove the required shim thickness to give a maximum up position of 80 degrees and tighten the cap screws. Better screw access is attained if the seat section is raised slightly.
5. Repeat step 2. The measured angles must be 81 ± 1 degrees and within one degree of one another. Repeat steps 3 through 5 if necessary.
6. Remove the cap screws one at a time to apply Loctite (106) and

tighten per assembly drawing.

7. Articulate the leg section to its full down position, measure and record the angle of each leg section frame.
8. The down adjustment is made by rotating the cylinder rod stops on the cylinder rods. Turn the cylinder rod stops toward the cylinder body to decrease maximum down articulation or away from the body to increase articulation. 1/8 revolution of the stop will alter the angle by about 1 degree.
 - a. For the right cylinder, to which will be attached the return to level hardware, it is important that the cylinder rod stop be adjusted such that one of the radial tapped holes is vertical with respect to the cylinder body.
9. Back the articulation away from its maximum down position a fraction of a degree to allow easy rotation of the cylinder rod stop. Make the necessary adjustment based on steps 7. and 8. to give a maximum down angle of 105 degrees.
10. Repeat step 7. The measured angles must be 105 ± 1 degree and within one degree of each other. Repeat steps 8. and 9. if necessary.
11. Apply Loctite (106) to the set screws (108) and tighten in the cylinder rod stops per assembly drawing.
12. Double check all four adjustments. Correct as required.

8.15.7 Leg Return to Level and Leg Full Up Adjustment (RL/SP Table)

Important:

- The adjustment of the Leg Full Up Position is affected by the adjustment of the Leg Level Position. Therefore, the Leg Level Procedure must precede the Leg Full Up procedure.
- If, for any reason after this procedure

is complete, the cam shaft is repositioned, both the Leg Level and Leg Full Up positions must be rechecked and any required adjustments made to ensure conformance with the requirements.

- If, for any reason after this procedure is complete, the right leg cylinder is replaced, or the right leg cylinder pivot block shims are changed, the Return to Level and Leg Full Up positions must be rechecked and any required adjustments made to ensure conformance with the requirements.
 - See Figure 8-4 & 8-5 for information and a picture of the environment and hardware dealt with in this procedure.
1. Initial Leg Full Up Angle Check – Disconnect the leg section Return to Level wiring. Actuate leg up until the motion stops. Measure the angle that the leg section makes with the seat section. Ensure that it is 81 ± 1 degrees and record the angle.
 - a. If the angle is not 81 ± 1 degrees, the initial leg adjustment is not correct and the leg cylinder pivot block shims need re-assessment per paragraph 4.
 - b. Reconnect the leg section Return to Level wiring.
 2. Leg Level Position Adjustment – Refer to Figure 8-4 for a flow chart of the adjustment procedure of paragraph 2.
 - a. Lower the leg to about 10 degrees below the seat section angle. Actuate Return to Level. When all motions have stopped, note the angle that the leg section makes with the seat section. If during the Return to Level function the leg does not come to rest – but rather oscillates up and down about the horizontal position, the adjustable switch needs to be repositioned away from the cylinder rod. Do this and go to paragraph 2.

- b. Raise the leg to about 10 degrees above the seat section angle. Actuate Return to Level. When all motions have stopped, note the angle that the leg section makes with the seat section.
 - c. If the angles measured in Step 1 are within specification, the Leg Level Position Adjustment is complete. Proceed to paragraph 3.
 - d. If the angles measured in paragraphs 2.a. and 2.b. are not within specification and their difference is less than three degrees, axial adjustment of the cam shaft position is required. Loosen the screw which attaches the cam shaft to the bracket, slide the shaft fore or aft, and retighten the screw. Note that a change in position of the shaft of 0.020 inch results in an angle change of about 1 degree.
 - If the leg stopped too high, slide the cam shaft towards the cylinder rod.
 - If the leg stopped too low, slide the cam shaft away from the cylinder rod.
 - Go to paragraph 2. Leg Level Position Adjustment.
3. Leg Full Up Position Adjustment - Ensure that the Return to Level wiring is properly connected. Actuate leg up until motion stops. Measure the angle that the leg section makes with the seat section.
 - a. If the angle is both at least one degree less than that measured in paragraph 1, Section 8.15, and within the specification, the Leg Full Up Position Adjustment is complete.
 - b. If the angle is at least one degree less than that measured in paragraph 1., Section 8.15, but too low to meet specification, loosen the Leg full up actuator screw and slide the actuator



away from the cylinder rod a small amount. Go to paragraph 3, Section 8.15.

- c. If the angle is within one degree of that measured in paragraph 1, loosen the Leg Full Up switch actuator screw and slide the actuator away from the cylinder rod a small amount. Go to paragraph 3., Section 8.15.

4. Requirement Specifications:

- a. Return to Level Angles - After actuation of Return to Level, for both the leg section initially above and below the seat section, the angle of the leg section, measured with respect to the seat section, shall be 0 ± 2 degrees.

- b. Leg Up Angle - When the leg is actuated fully up, the angle of the leg section measured with respect to the seat section shall be 80 ± 1 degree. In addition, the angle must be at least one degree less than the maximum angle permitted by the mechanical elements (as attained in paragraph 4).

2. If necessary, adjust floor locks as follows:

- a. Unlock floor locks and turn each foot onto its shaft until the foot will not make contact with the floor when the floor locks are engaged.
- b. Engage the floor locks. Unscrew each foot from its shaft until it just makes contact with the floor.
- c. Unlock the floor locks and unscrew each foot an additional $4\frac{1}{2}$ turns.
- d. Verify the distance between the caster and floor is $1/4 \pm 1/32$ " with floor locks engaged.

Note: Apply Loctite 290 where cylinder rod attaches to clevis.

8.15.8 Floor Lock Assembly

1. With table on a level floor, engage the floor locks. Check distance between each caster and floor, it should be $1/4 \pm 1/32$ ".

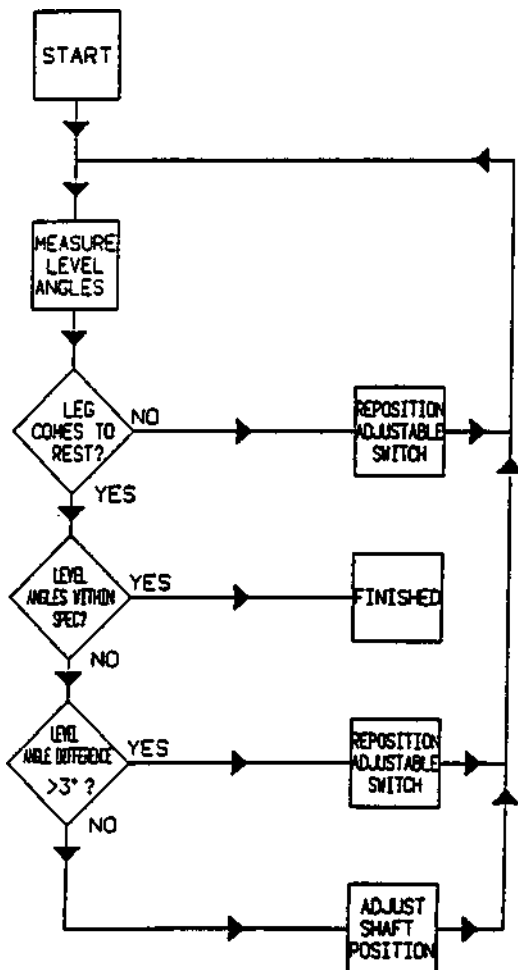


Figure 8-4. Leg Level Position Adjustment Procedure for Return to Level

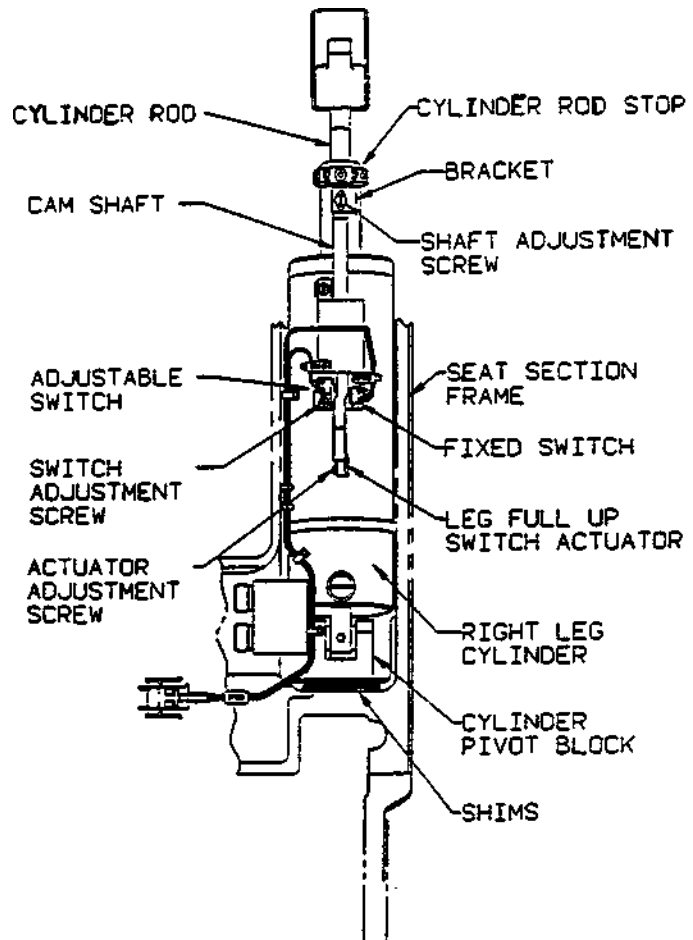


Figure 8-5. Leg Return to Level and Leg Full Up Switch and Actuator Hardware

GENERAL

Assemblies and components of the Quantum 3080 table are illustrated and identified on the following pages. The part number, the description and the quantity required for each usage are given. Each indentation in the description represents the assembly level. The **UNITS PER ASSEMBLY** column is specific for the given assembly or subassembly level.

How to Use the Illustrated Parts Breakdown

- ① Determine the function and application of the part required. Turn to the list of illustrations and select the most appropriate title. Note the illustration page number.
- ② Turn to the page indicated and locate the desired part on the illustration.
- ③ From the illustration, obtain the index number assigned to the part desired. Refer to the accompanying description for specific information regarding the part.

Typical Indentation Example

No Indentation -
part of top
assembly

One Indentation -
first subassembly,
part of assembly
under which it is
indented

				SHROUD ASSEMBLY
P	136807	084		ASSEMBLY, Base Shroud
P	146653	758		• SHROUD, Base, Front Half
P	146653	759		• SHROUD, Base, Back Half
P	146653	528		SHROUD, Bottom Intermediate
P	146653	459		SHROUD, Top Intermediate



9.1 SPECIAL INSTRUCTIONS

Table 9-1 gives the part numbers and figure references of the most commonly

replaced items on a 3080 table. It is for quick reference only. For a complete listing of parts, refer to the appropriate exploded view.

TABLE 9-1. 3080 PARTS, QUICK REFERENCE GUIDE

Part	Description	Part Number	Reference
Hydraulic Cylinders	Leg (w/flow fuse, left-hand leg)	P-146655-463	Fig. 9-14, Item 6
	Leg (w/flow fuse, right-hand leg)	P-146655-464	Fig. 9-14, Item 5
	Back (w/pilot check valve)	P-141210-096	Fig. 9-15, Item 2
	Back (w/flow fuse)	P-141210-099	Fig. 9-15, Item 3
	Seat	P-141210-098	Fig. 9-11, Item 4
	Side Tilt Cylinder	P-141210-107	Fig. 9-11, Item 5
	Column Pilot Check Valve	P-134469-109	Fig. 9-3, Item 8
Circuit Boards	Table Control Board	P-146655-481	Fig. 9-24, Item 26
	Override Board	P-136807-085	Fig. 9-22, Item 40
	Power Supply Assembly (battery)	P-136807-103	Fig. 9-4, Item 40
	• Power Control PC Board	P-760265-598	Fig. 9-4, Item 43
	Battery Charger (motor only)	P-146653-939	Fig. 9-2, Item 7
O-Rings	For all SAE Fittings (except metric pump)	P-129360-338	Fig. 9-21, Item 5
	For all Hose and Tube Fittings	P-129359-667	Fig. 9-21, Item 4
	For Solenoid Cartridges	P-764323-054	Fig. 9-21, Item 10
	For Metric Pump Fitting	P-764323-057	Fig. 9-22, Item 17
Kits	Hydraulic Oil Kit	P-764322-636	
	RL/SP Hand Control	P-141210-208	Fig. 9-13, Item 35
	RC Hand Control	P-141210-154	Fig. 9-13, Item 34
	RC, RL/SP Hand Control Repair Kits		
	• Hand Control Cord Replacement Kit	P-764325-629	
	• Hand Control PC Board Replacement	P-764325-633	
	• Hand Control Housing, RC	P-764325-631	
	• Hand Control Housing, RL/SP	P-764325-630	
	Touch-up Paint (Dark Gray, 12 oz. can)	P-764319-808	
	Touch-up Paint (60cc; Off-white)	P-150824-607	
	Foot Control Switch Kit	P-764326-690	
	Foot Control Cord Kit	P-764326-689	
	Reservoir Replacement Kit	P-150823-864	
	Lift Cylinder Ram Seal Kit	P-764324-901	
	Column Seal Spanner Wrench	P-764324-884	



QUANTUM 3080 - 04 Tables

Surgical Table

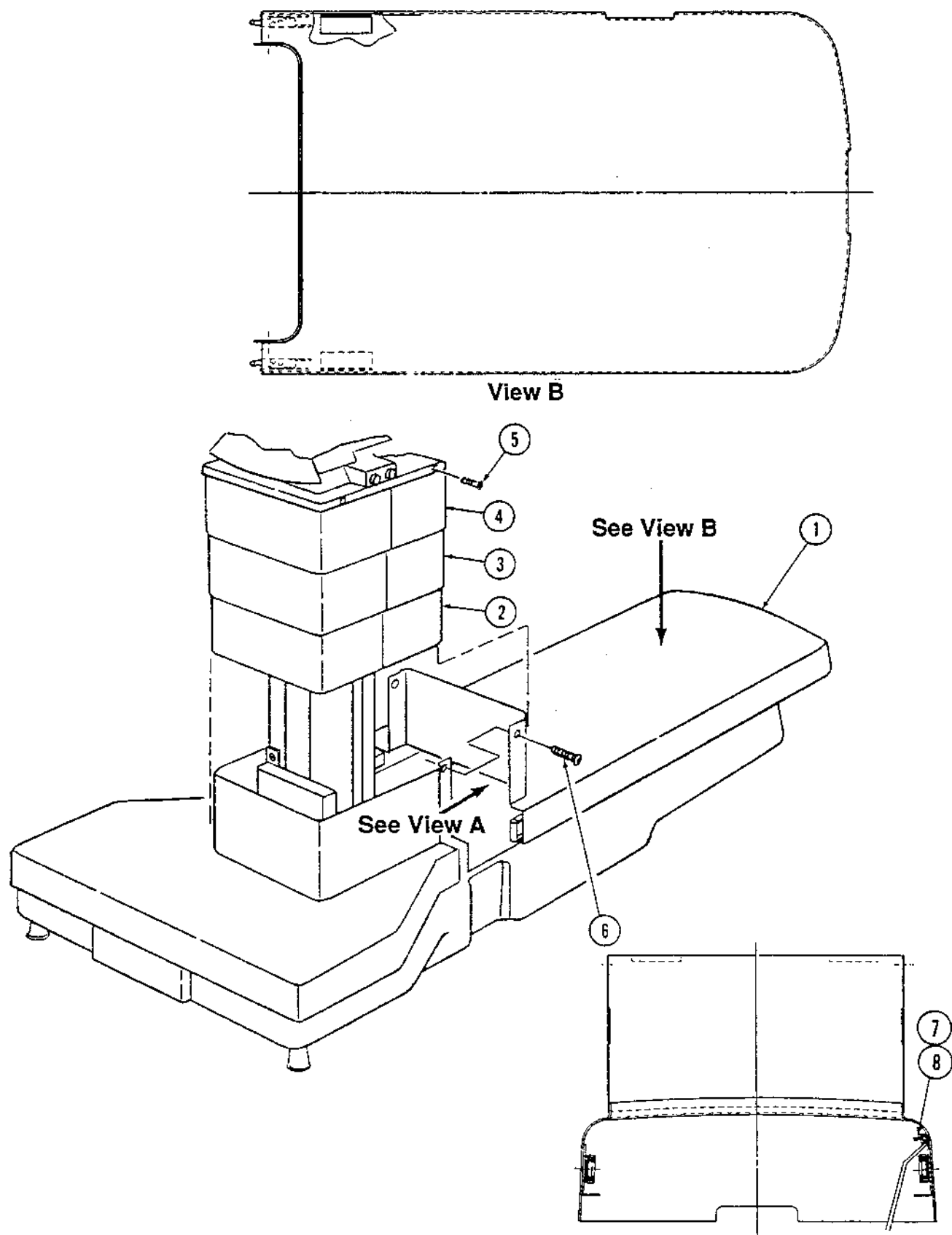


FIGURE 9-1. Shroud Assembly

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
9-1-					SHROUD ASSEMBLY - RC	X			
					SHROUD ASSEMBLY - RL		X		
	1	P	141210	086	ASSEMBLY, Base Shroud	1	1		
	2	P	146653	528	SHROUD, Bottom Intermediate	1	1		
	3	P	146653	459	SHROUD, Top Intermediate	1	1		
	4	P	760265	599	ASSEMBLY, Upper Shroud (RC, Battery Table)	1			
		P	760265	600	ASSEMBLY, Upper Shroud (RC, Electric Table)	1			
		P	762650	188	ASSEMBLY, Upper Shroud (RL, Battery Table)		1		
		P	762650	187	ASSEMBLY, Upper Shroud (RL, Electric Table)		1		
	5	P	129360	882	SCREW, Cap, Hex Sockethead, #10-24 x 3/8	4	4		
	6	P	3967	041	SCREW, Machine Roundhead, #8-32 x 1/4	2	2		
	7	P	2960	042	NUT, Hex #10-32	1	1		
	8	P	124361	013	LOCKWASHER, External Tooth #10	1	1		
	9	P	93909	734	LABEL, Manual Pump (not shown)	1	1		
	10	P	56397	351	DECAL, Base Warning (not shown)	1	1		

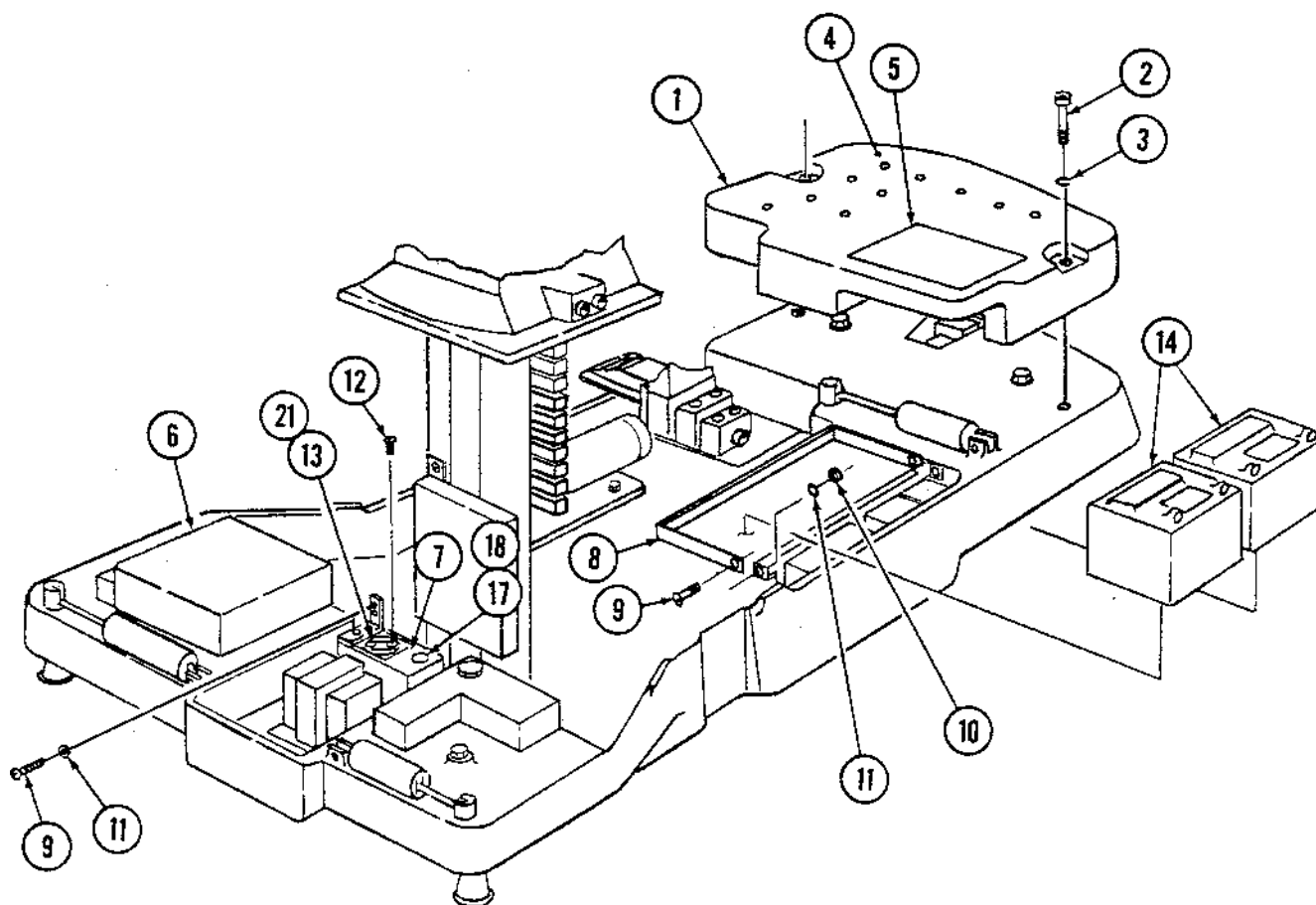


FIGURE 9-2. Table Base Assembly (Part 1 of 3)

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
9-2-					TABLE BASE ASSEMBLY - 3080RC - (Part 1 of 3)				
					ELECTRIC UNIT	X			
					BATTERY UNIT		X		
					TABLE BASE ASSEMBLY - 3080RL - (Part 1 of 3)				
					ELECTRIC UNIT			X	
					BATTERY UNIT				X
	1	P	146653	460	COUNTERWEIGHT	1	1	1	1
	2	P	129359	896	SCREW, Cap, Hex Sockethead, 3/8-16 x 3-1/4	2	2	2	2
	3	P	19680	041	LOCKWASHER, 3/8	2	2	2	2
	4	P	129360	481	BUMPON	A/R	A/R	A/R	A/R
	5	P	136807	011	LABEL, Battery Replacement	1	1	1	1
	6	P	146653	775	POWER SUPPLY, Electric Unit (see Figure 9-4)	1			
		P	136807	103	POWER SUPPLY, Battery Unit (see Figure 9-4)		1		1
	7	P	146653	939	MODULE, Battery Charger (Motor)		1		1
	8	P	93909	212	BRACKET, Battery Support (Coated)		1		1
	9	P	93908	037	SCREW, Sems, #8-32 x 1/2		4		4
	10	P	3153	041	NUT, Hex, #8-32		2		2
	11	P	84114	003	WASHER, Flat, #8		4		4
	12	P	129360	652	SCREW, Tamper-proof, #4-40 x 1/2		2		2
	13	P	129360	653	COVER, Switch		1		1
	14	P	136806	806	BATTERY, 12 V (Motor)		2		2
		R	7200	040	• TAPE, 4" wide (roll)	A/R	A/R	A/R	A/R
	15	P	136807	036	ASSEMBLY, Cable, P25 to Battery (Not Shown)		1		1
	16	P	93909	467	JUMPER, Motor Battery (Not Shown)		1		1
	17	P	93909	444	FUSE, 1 AMP		1		1
	18	P	93908	673	HOLDER, Fuse	1	1	1	1
	19	P	129360	598	TIE, Cable (Not Shown)		4		4
	20	P	93909	748	JUMPER, Wire, Program, P29 (Not Shown)		1		1
	21	P	129360	525	DECAL, Fuse F4	1	1	1	1

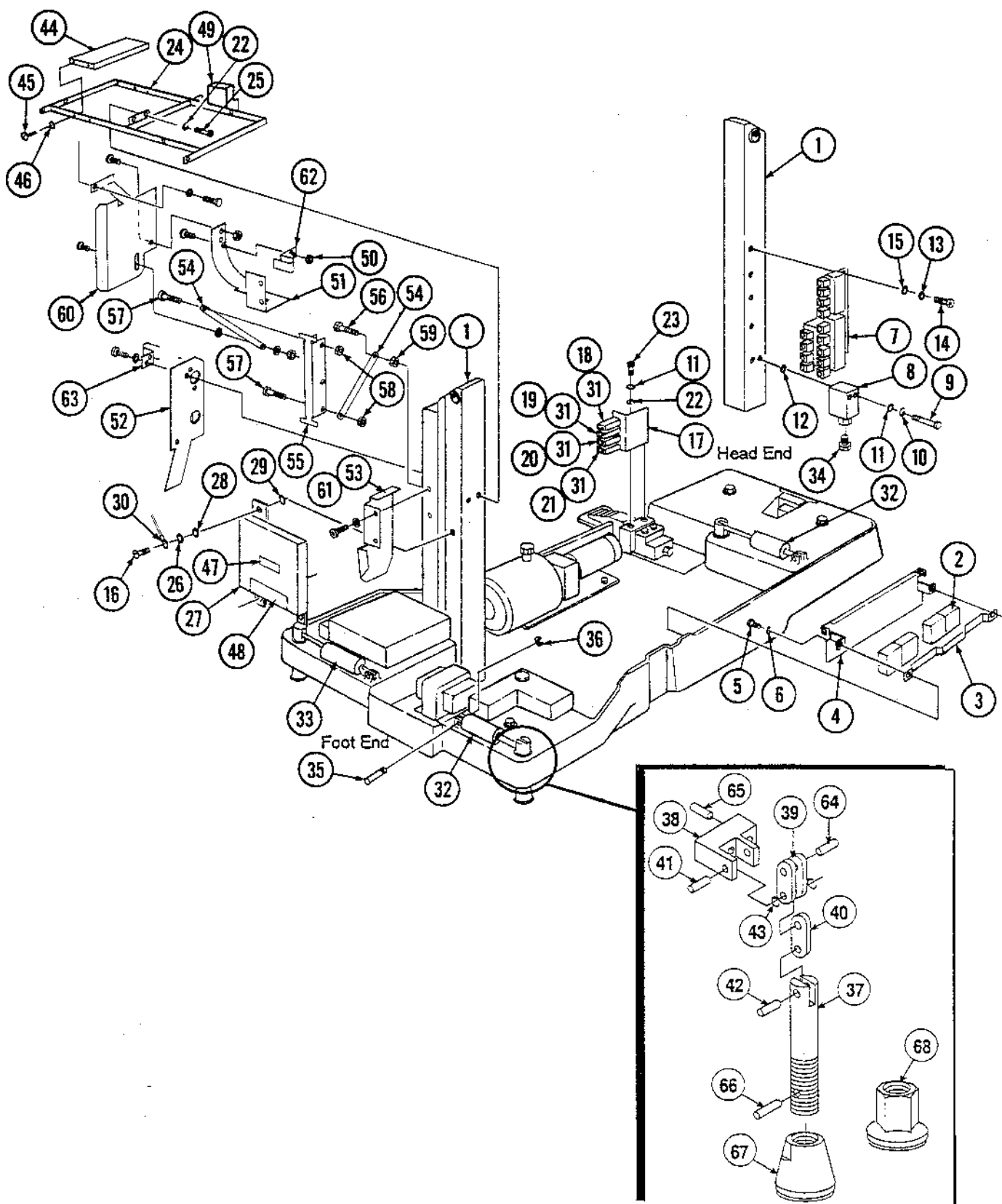


FIGURE 9-3. Table Base Assembly (Part 2 of 3)

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
9-3-	P	146653	799		TABLE BASE ASSEMBLY -- 3080RC -- (Part 2 of 3)	X			
	P	146655	459		TABLE BASE ASSEMBLY -- 3080RL -- (Part 2 of 3)		X		
1	P	146653	426		COLUMN ASSEMBLY (see Figure 9-9)	1	1		
2	P	93908	637		BATTERY, Control	2	2		
3	P	93909	283		STRAP, Battery Support	1	1		
4	P	136806	807		PLATE, Battery Support	1	1		
5	P	50527	061		SCREW, Cap, Hex Sockethead, #8-32 x 1/2	2	2		
6	P	19676	041		LOCKWASHER, #8	2	2		
7	P	146653	778		ASSEMBLY, Valve (see Figure 9-21)	1	1		
8	P	134469	109		VALVE, Single Pilot-operated Check	1	1		
9	P	129360	676		SCREW, Cap, Sockethead	2	2		
10	P	26962	061		LOCKWASHER, 1/4, Internal Tooth	2	2		
11	P	81673	006		WASHER, Flat, 1/4	4	4		
12	P	129359	667		O-RING	2	2		
13	P	19677	041		LOCKWASHER, #10	4	4		
14	P	41012	061		SCREW, Cap, Hex Sockethead, #10-32 x 1/2	4	4		
15	P	17589	045		WASHER, Flat, #10	4	4		
16	P	93908	037		SCREW, Sems, #8-32 x 1/2	2	2		
17	P	136807	018		BRACKET, Circuit Breaker	1	1		
18	P	93909	323		BREAKER, Circuit, 15 AMP	1	1		
19	P	56397	356		BREAKER, Circuit, 12 AMP	1	1		
20	P	93909	320		BREAKER, Circuit, 1 AMP	1	1		
21	P	93909	321		BREAKER, Circuit, 4 AMP	1	1		
22	P	19678	045		LOCKWASHER, 1/4	4	4		
23	P	2792	045		SCREW, Cap, Hex Sockethead, 1/4-20 x 1/2	2	2		
24	P	141210	147		SUPPORT, Shroud Mounting	1	1		
25	P	37676	061		SCREW, Cap, Hex Sockethead, 1/4-28 x 5/8	2	2		
26	P	84114	003		WASHER, Flat, #8	2	2		
27	P	146655	481		ASSEMBLY, Control PC Board Housing	1	1		
28	P	27324	091		WASHER, Flat, Nylon	2	2		
29	P	129360	883		WASHER, Shoulder, Nylon	2	2		
30	P	93909	782		SHIELD, Wire	1	1		
31	P	129360	372		BUTTON, Seal Reset	4	4		
32	P	146653	540		CYLINDER, Hydraulic, Floor Lock	2	2		
33	P	146653	777		CYLINDER, Hydraulic, Floor Lock	1	1		
34	P	129359	656		FITTING, Hydraulic, Straight	1	1		
35	P	150823	227		PIN, Groove, 5/16 Diameter		3		
36	P	36836	091		RING, Retaining	6			
37	P	93908	849	*	• SHAFT, Floor Lock	1	1		
38	P	93908	850	*	• CLEVIS, Cylinder	1	1		
39	P	129360	152	*	• LINK, Pivot	2	2		
40	P	129360	151	*	• LINK, Shaft	1	1		
41	P	129359	898	*	• PIN, Link	1	1		
42	P	129359	899	*	• PIN, Shaft	1	1		
43	P	47429	061	*	• RING, Retaining, 1/4 Diameter	2	2		
44	P	136807	085		ASSEMBLY, Override Control Board Box	1	1		
45	P	81681	001		SCREW, Machine Roundhead, #6-32 x 3/8 Long	4	4		
46	P	81682	001		LOCKWASHER, #6	4	4		
47	P	93909	410		LABEL, Low Battery Indicator	1	1		
48	P	93909	777		LABEL, Caution	1	1		
49	P	136806	477		GUIDE, Hose	1	1		



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FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
50	P	118442	045		LOCKNUT	5	5		
51	P	136806	805		SUPPORT, Hose	1	1		
52	P	136806	804		BRACKET, Hose Guide Support	1			
53	P	136807	032		RETAINER	1	1		
54	P	93909	778		LINK, Hose Hanger	2	2		
55	P	93909	217		HANGER, Hose	1	1		
56	P	81667	003		SCREW, Machine Hex Head #10-32 X 1-1/4" Long	1	1		
57	P	27690	041		SCREW, Truss Head #10-24 X 3/4" Long	2	2		
58	P	8646	061		NUT, Hex #10-24	2	2		
59	P	2960	042		NUT, Hex #10-32	2	2		
60	P	136807	038		HOSE, Guide	1	1		
61	P	141210	088		HOSE, Guide Support		1		
62	P	129360	267		CLAMP, Hose	2	2		
63	P	129360	268		CLAMP, Hose	1	1		
64	P	129359	900		PIN, Housing	3	3		
65	P	40848	061		SCREW, Set, Sockethead, 1/4-20 x 3/4"	2	2		
66	P	21504	091		CYLINDER, Rubber	3	3		
67	P	150199	001		FOOT	2	2		
68	P	150200	001		FOOT	1	1		
<p>* Item #'s 37 - 43 can be replaced as a complete assembly by ordering P-93908-634 (left-hand shaft and link assembly) or P-93908-635 (right-hand shaft and link assembly). See Figure 9-4, items 13 & 14 for a pictorial.</p>									



QUANTUM 3080 - 04 Tables

Surgical Table

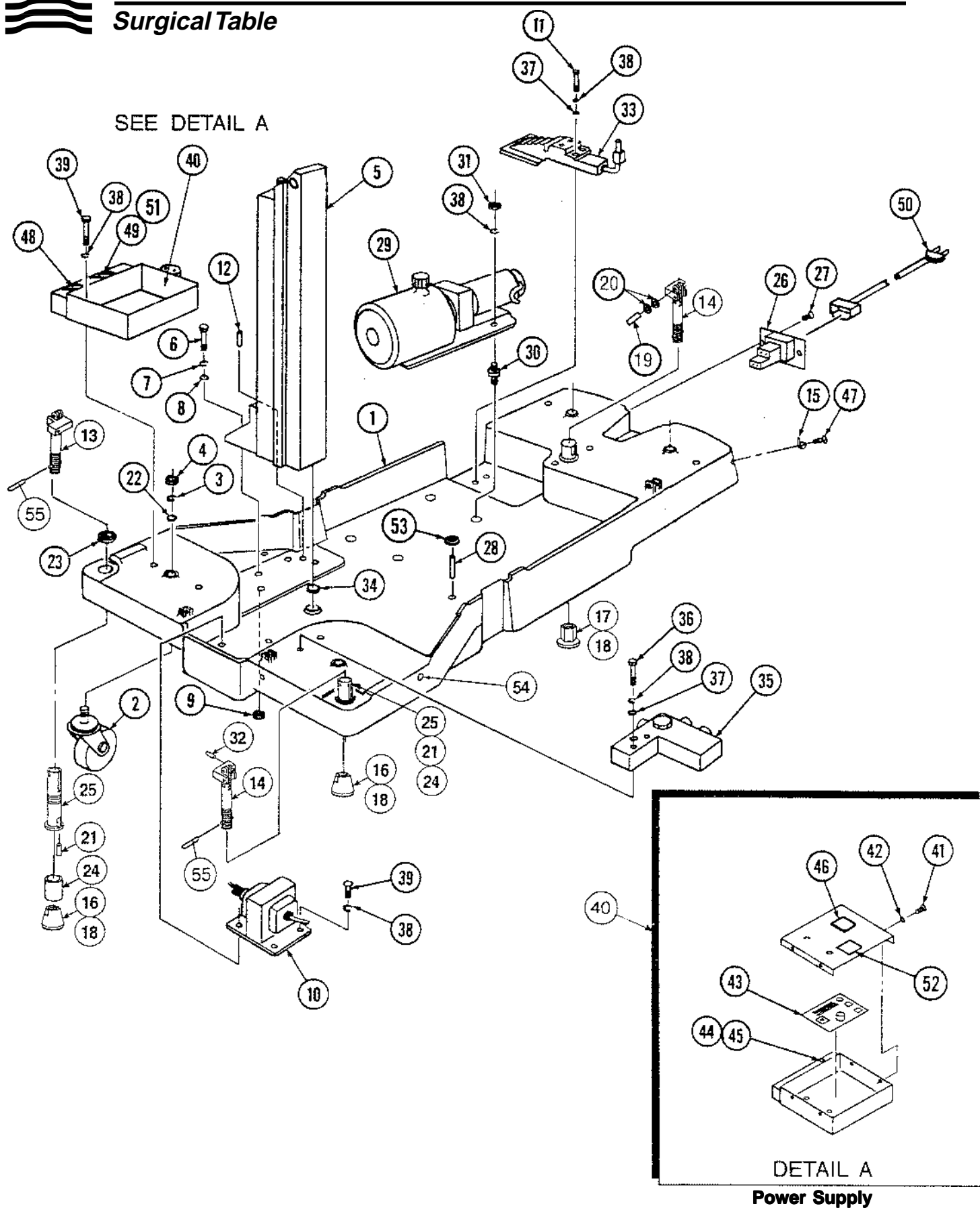


FIGURE 9-4. Table Base Assembly (Part 3 of 3)

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
9-4-					TABLE BASE ASSEMBLY - 3080RC - (Part 3 of 3)	X			
					TABLE BASE ASSEMBLY - 3080RL - (Part 3 of 3)		X		
1	P	146653	465		BASE, Table	1	1		
2	P	93909	361		CASTER, Swivel, 1/2-13	4	4		
3	P	19681	045		LOCKWASHER, 1/2	4	4		
4	P	13397	041		NUT, Hex, 1/2-13	4	4		
5	P	146653	426		ASSEMBLY, Column (see Figures 9-9 and 9-10)	1	1		
6	P	36633	001		SCREW, Cap, Hex Sockethead, 3/8-16 x 1-3/4	4	4		
7	P	19680	041		LOCKWASHER, Flat, 3/8	4	4		
8	P	10412	042		WASHER, Flat, 3/8	4	4		
9	P	129360	496		LOCKNUT, Uni-torque, 3/8-16	4	4		
10	P	136807	033		ASSEMBLY, Transformer, 24 Volt	1	1		
11	P	45613	091		SCREW, Cap, Sockethead, 1/4-20 x 1-1/2	2	2		
12	P	46156	061		PIN, Spring Roll, 5/16 Diameter x 3/4	2	2		
13	P	93908	635		ASSEMBLY, Shaft and Link, Right Hand (see Fig. 9-3)	1	1		
14	P	93908	634		ASSEMBLY, Shaft and Link, Left Hand (see Fig. 9-3)	2	2		
15	P	129360	565		CLAMP, Wire	1	1		
16	P	150199	001		FOOT	2	2		
17	P	150200	001		FOOT	1	1		
18	P	21504	091		CYLINDER, Rubber	3	3		
19	P	129359	900		PIN, Housing, 5/16 Diameter	3	3		
20	P	24699	091		PIN, Retaining, "E", 5/16 Diameter	6	6		
21	P	36683	061		PIN, Roll, 1/8 Diameter x 1/2	3	3		
22	P	31931	061		WASHER, Flat, 1/2	4	4		
23	P	129360	154		NUT, Retainer	3	3		
24	P	10540	091		BEARING, Plain Olite	3	3		
25	P	136806	493		HOUSING, Floor Lock	3	3		
26	P	134469	091		ASSEMBLY, A.C. Plate (see Figure 9-6)	1	1		
27	P	93908	037		SCREW, Sems, #8-32 x 1/2	2	2		
28	P	129359	849		STANDOFF, 1/4-20	1	1		
29	P	146655	471		ASSEMBLY, Motor and Pump (see Figure 9-8)		1		
30	P	45744	001		MOUNTING, Motor (vibration mount)	4	4		
31	P	3097	041		NUT, Hex, 1/4-20	3	3		
32	P	40848	061		SCREW, Set Sockethead, 1/4-20 x 3/4	2	2		
33	P	146653	789		ASSEMBLY, Foot Pump (see Figure 9-7)	1	1		
34	P	129360	876		O-RING, Ram	1	1		
35	P	146653	535		ASSEMBLY, Base Valve (see Figure 9-5)	1	1		
36	P	91520	091		SCREW, Cap, Hex Sockethead, 1/4-20 x 3	2	2		
37	P	81673	006		WASHER, Flat, 1/4	6	2		
38	P	19678	045		LOCKWASHER, 1/4	14	14		
39	P	2792	045		SCREW, Cap, Hex Sockethead, 1/4-20 x 1/2	7	7		
40	P	136807	103		ASSEMBLY, Power Supply	1	1		
41	P	93908	035		SCREW, Sems, #8-32 x 5/16 Long	6	6		
42	P	84114	003		WASHER, Flat, #8	4	6		
43	P	760265	598		PC BOARD, Power Control	1	1		
	P	129360	518		• JUMPER (Battery Table Only)	1	1		
44	P	93909	222		FUSE, 1/2 AMP	1			
45	P	93908	673		HOLDER, Fuse	1			
46	P	93909	750		LABEL, Battery Identification	1			



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FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
47	P	81669	002		SCREW, Truss Head, #10-32 x 1/2	2	2		
48	P	129360	652		SCREW, Tamper-proof, #4-40 x 1/2	4			
49	P	129360	653		COVER, Switch	2			
50	P	764324	271		CORD, w/Velcro® Strap	1	1		
	P	56397	185		CORD, Intr. (No Plug)	1			
51	P	129360	524		DECAL, Fuse F3	1	1		
52	P	93909	405		LABEL, Fuse Replacement	1	1		
53	P	5575	045		WASHER, Flat Plain Wide 1/4"	1	1		
54	P	93909	538		BUMPER ASSEMBLY, Stand-off	5	5		
55	P	21504	091		CYLINDER, Rubber	3	3		

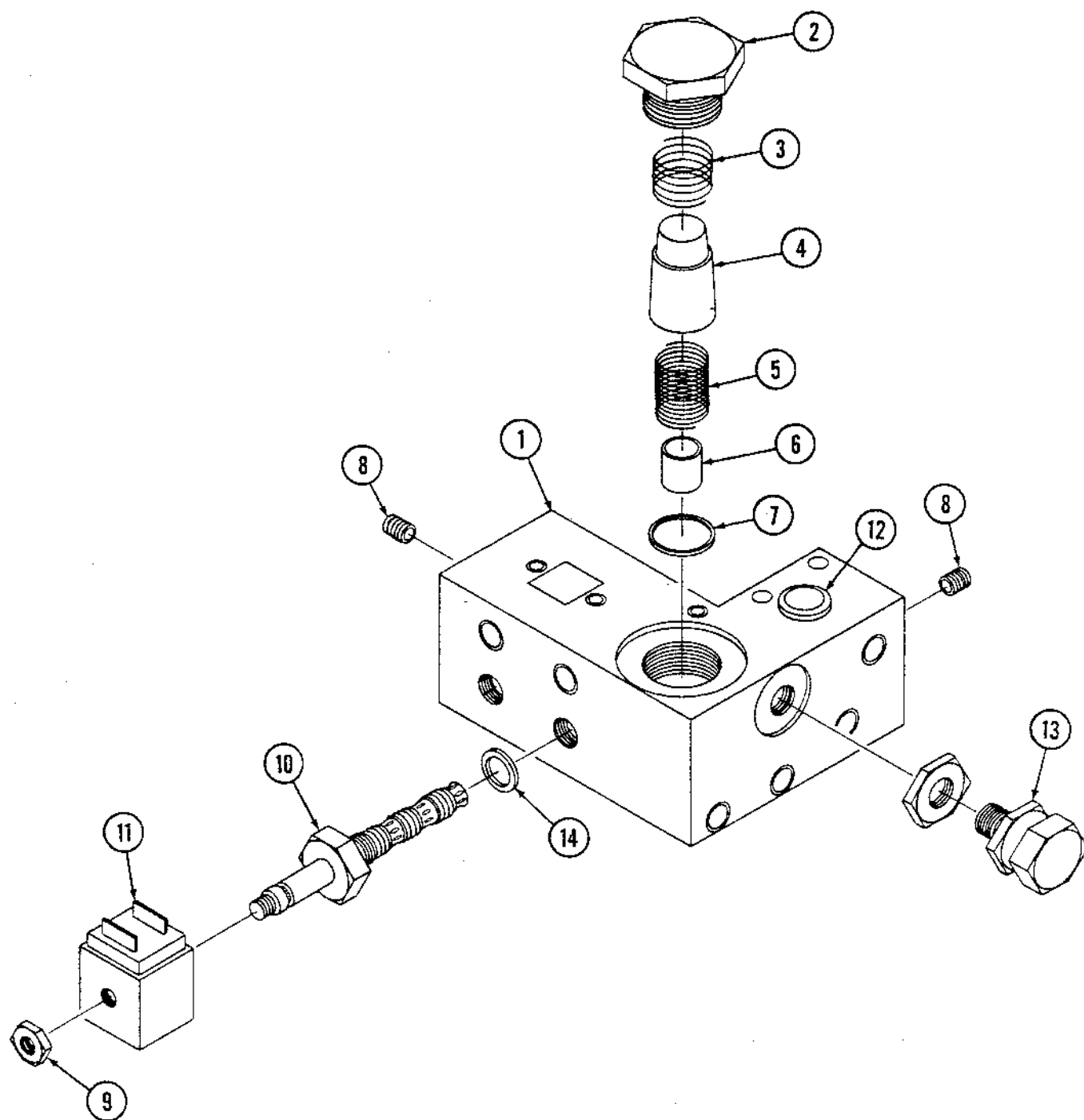


FIGURE 9-5. Base Valve Assembly

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
9-5-		146653	535		BASE VALVE ASSEMBLY (RC & RL)	X			
1	P	146653	536		MANIFOLD, Base	1			
2	P	129359	851		ASSEMBLY, Cap	1			
3	P	129359	706		SPRING	1			
4	P	129359	701		ELEMENT, Filter, Bronze	1			
5	P	129360	226		SPRING	1			
6	P	84350	001		TUBE, .625 OD x .625 Long	1			
7	P	129359	705		GASKET	1			
8	P	129359	747		PLUG, Hydraulic	5			
9	P	129359	676		NUT, Jam, Waterman	2			
10	P	129359	660		VALVE, Cartridge	2			
11	P	129359	670		COIL	2			
12	P	129360	337		FITTING, Hydraulic	1			
13	P	129359	677		VALVE, Relief	1			
14	P	764323	054		O-RING (Large)	2			

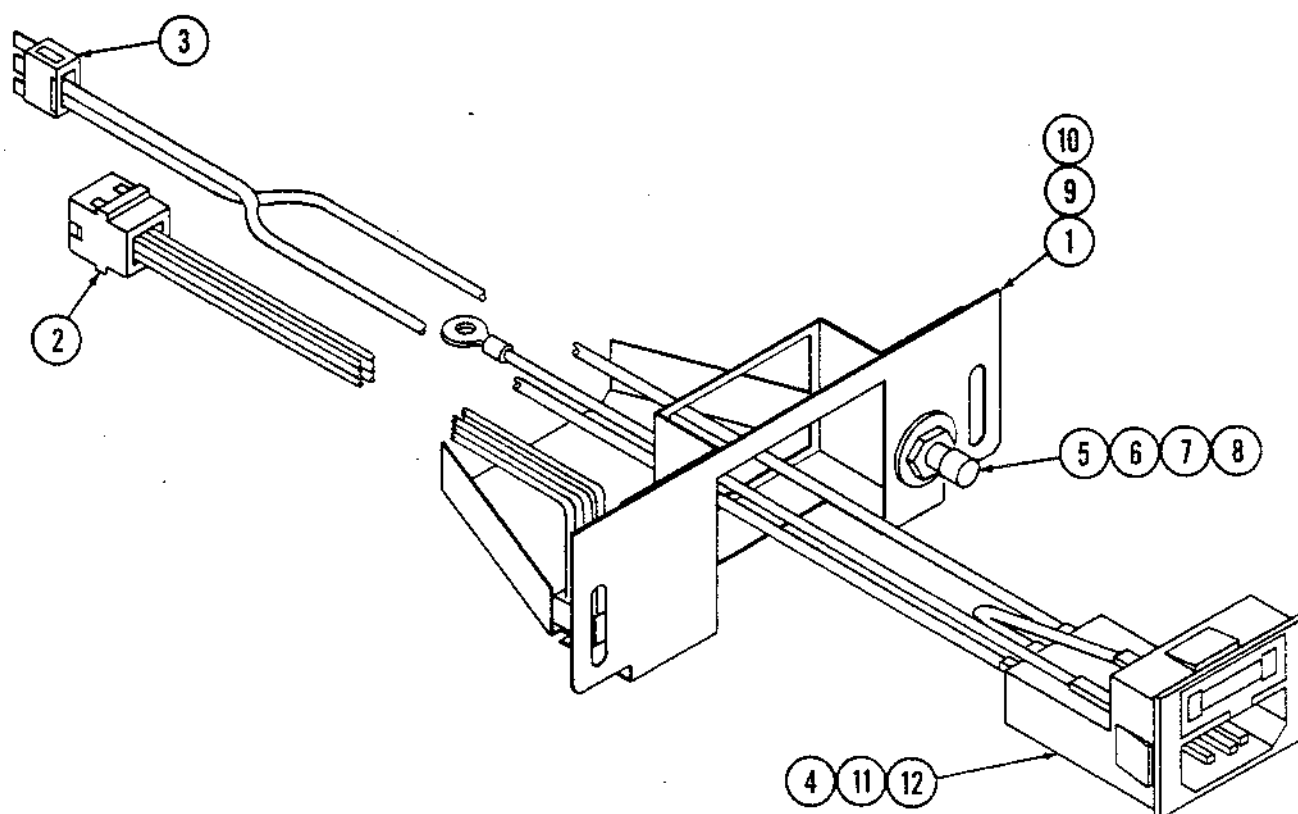


FIGURE 9-6. AC Plate Assembly

FIG. & INDEX NO.		PART NUMBER		SVC	DESCRIPTION	UNITS PER ASSEMBLY			
9-6	1		134469	091	AC PLATE ASSEMBLY	X			
			764326	376	AC PLATE ASSEMBLY w/LABELS (RL & RC)		X		
	2	P	134469	092	ASSEMBLY, Cable, Floor Lock Override			1	
	3	P	136807	030	ASSEMBLY, Cable, Power Control	1		1	
	4	P	150823	292	CARTRIDGE, Fuse, 6 AMP (120 VAC Service)	2		2	
	5	P	129360	371	PLUG, Grounding, International	1		1	
	6	P	129360	373	WASHER, Color Coded, International	1		1	
	7	P	129360	375	WASHER, Lock, F/M6	1		1	
	8	P	129360	451	NUT, Hex, M6 x 1	1		1	
	9	P	93909	402	LABEL - Auxilury			1	
	10	P	93909	403	LABEL - Receptacle Ground			1	
	11	P	93909	406	LABEL - Warning Fuse (AC) French			1	
	12	P	93909	454	LABEL - Warning Fuse (AC) English			1	
		P	93909	462	TIE WRAPS	6		6	

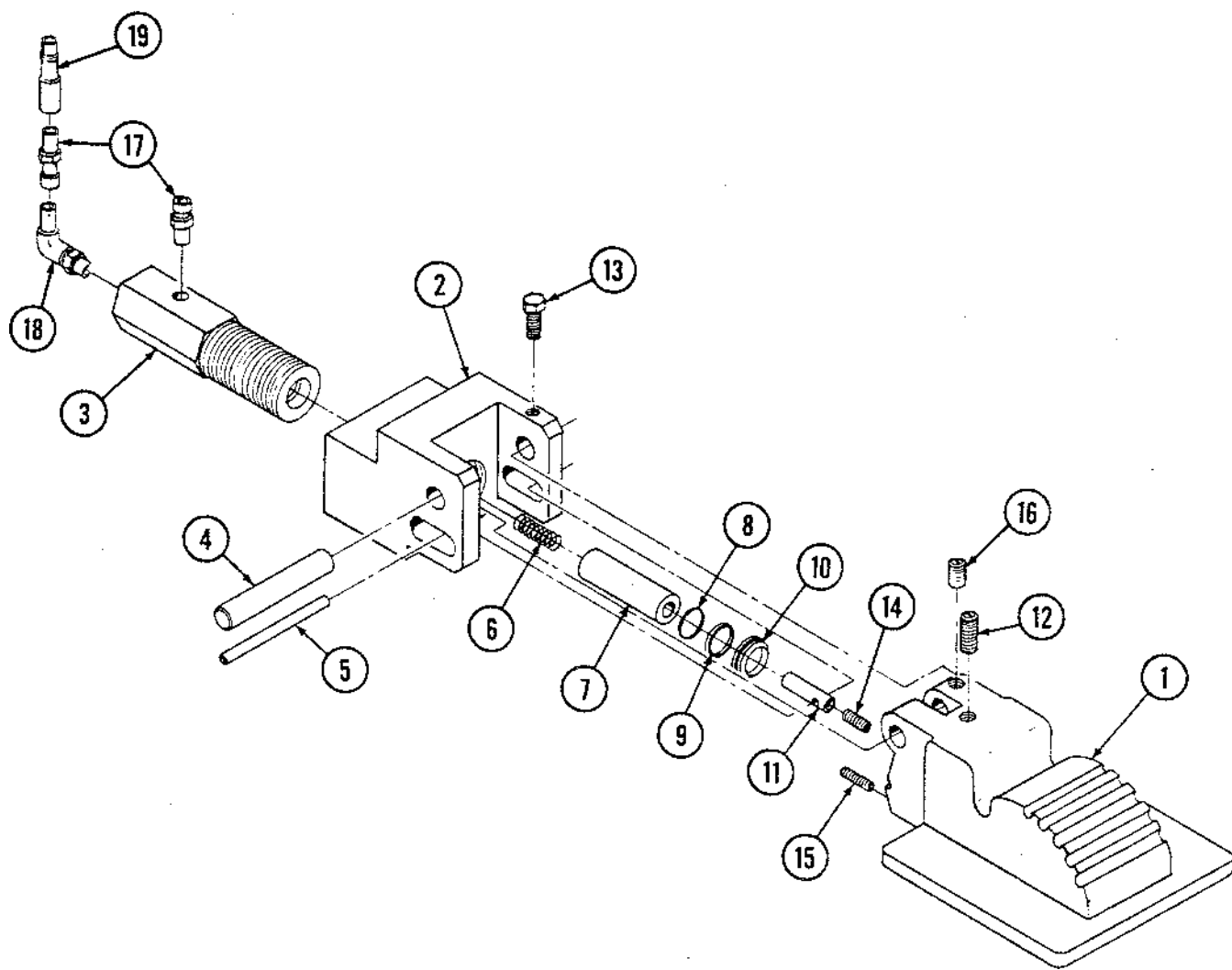


FIGURE 9-7. Foot Pump Assembly

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
9-7-	P	146653	789		FOOT PUMP ASSEMBLY	X			
1	P	136807	013		PEDAL, Painted	1			
2	P	136807	008		BRACKET, Pump	1			
3	P	136807	006		BODY, Pump	1			
4	P	129360	462		ROD, Pedal	1			
5	P	129360	468		PIN, Push	1			
6	P	129360	464		SPRING, Compression	1			
7	P	136807	009		PLUNGER	1			
8	P	43489	091		O-Ring	1			
9	P	129360	463		RING, Back-up	1			
10	P	129360	479		RING, Wiper	1			
11	P	93909	373		ROD, Push	1			
12	P	80001	091		SCREW, Set, Nylock, 1/4-20 x 1/2 Long	1			
13	P	83443	001		SCREW, Hexhead, 1/4-20 x 1/2 Long, Nylon	1			
14	P	42617	045		SCREW, Set, #6-32 x 1/4 Long	1			
15	P	31276	061		SCREW, Set, #10-32 x 1/2 Long	2			
16	P	4772	045		SCREW, Set, 1/4-20 x 1/4 Long	1			
17	P	93909	512		VALVE, Check	2			
18	P	129360	335		FITTING, Hydraulic	1			
19	P	129360	569		FITTING, Hydraulic	1			

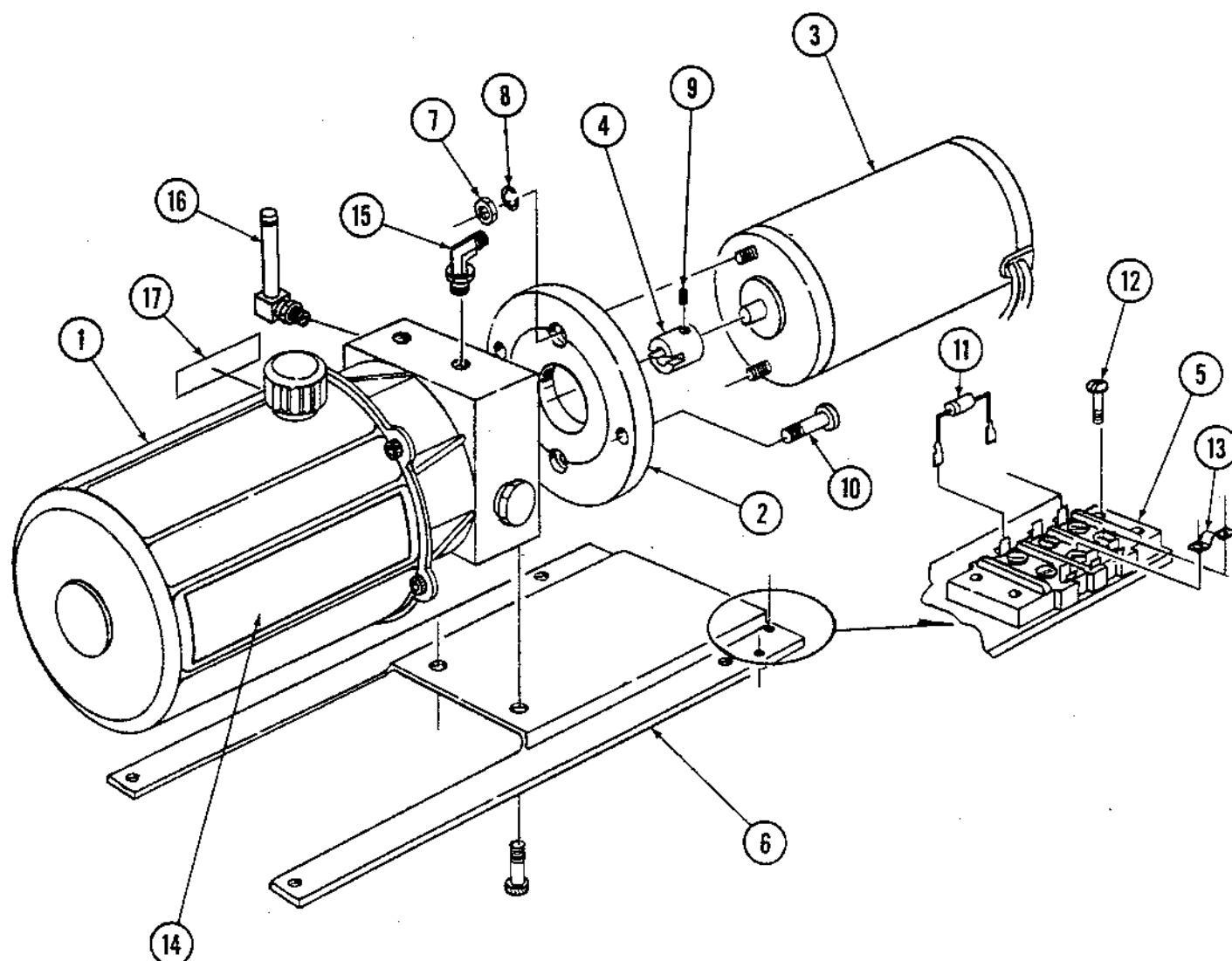


FIGURE 9-8. Motor and Pump Assembly

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
9-8-	P	146655	471		MOTOR AND PUMP ASSEMBLY - RC & RL	X			
1	P	146655	490		ASSEMBLY, Pump and Reservoir				
2	P	93909	202		PLATE, Motor	1			
3	P	93910	853		MOTOR	1			
4	P	93909	203		COUPLING, Motor	1			
	P	129361	859		COUPLING, Motor	1			
5	P	129359	140		BLOCK, Terminal	1			
6	P	93909	279		PLATE, Pump Support	1			
	P	93910	854		PLATE, Pump Support	1			
7	P	2960	042		NUT, Hex, #10-32	2			
8	P	76801	045		LOCKWASHER, #10	2			
9	P	51176	091		SCREW, Set, #8-32 x 1/8	1			
10	P	129360	326		SCREW, Cap, Hex Sockethead, M6 x 25	2			
11	P	93909	780		ASSEMBLY, Rectifier	1			
12	P	81681	002		SCREW, Roundhead, M5, #6-32 x 1/2	2			
13	P	84123	001		JUMPER, No. 6 Stud	1			
14	P	93909	404		LABEL, Oil Reservoir	1			
15	P	129359	658		FITTING, Hydraulic	2			
16	P	129360	341		FITTING, Hydraulic	1			
17	P	93909	404		LABEL, Oil Reservoir	1			
18	R	150823	864		RESERVOIR SEAL KIT (not shown)	1			
					• Reservoir O-ring Seal				
					• Nut				
					• Screw, Slotted Hex				
					• Reservoir				
					• Washer				

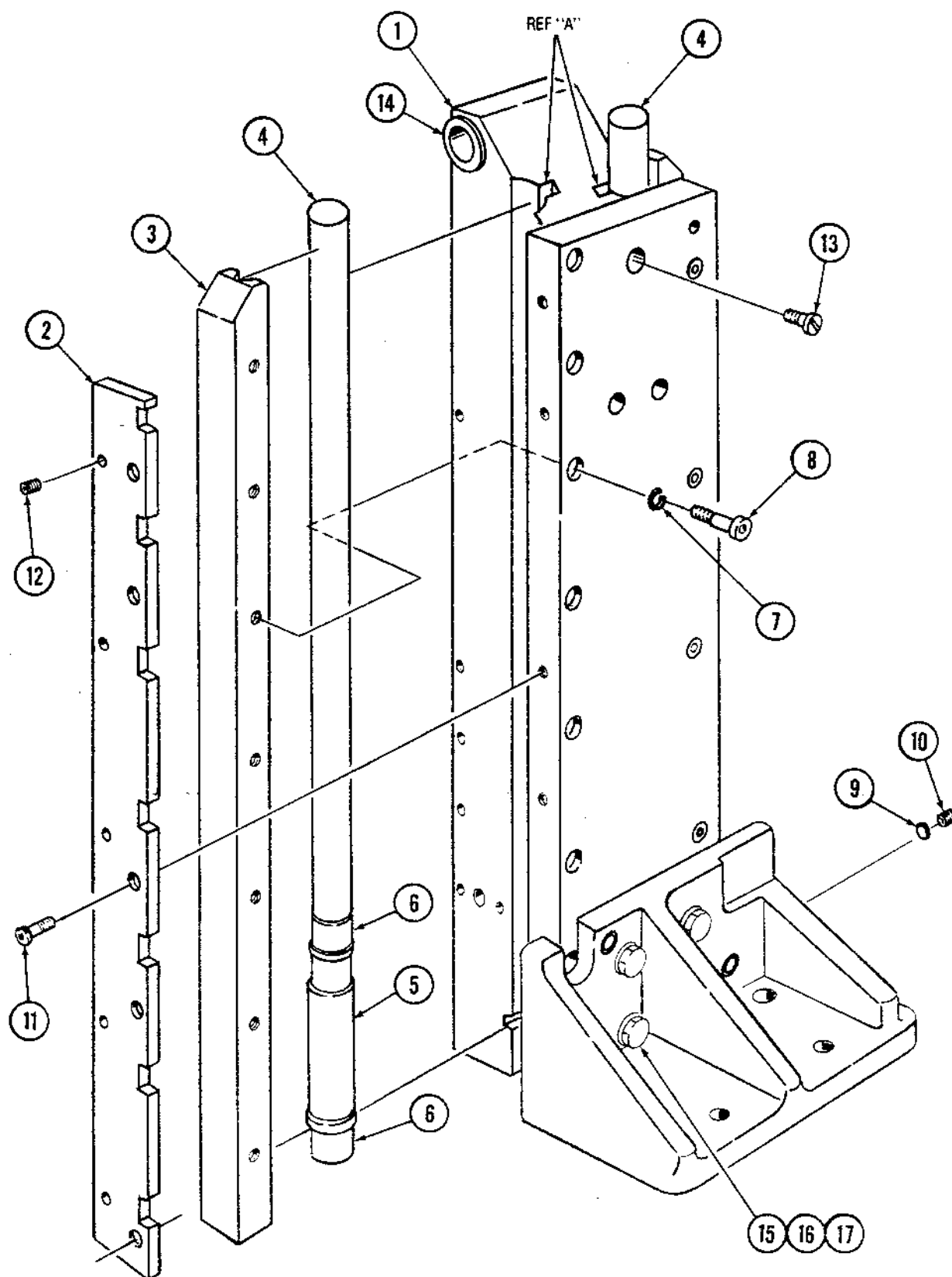


FIGURE 9-9. Column Assembly (Part 1 of 2)

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
9-9-	P	146653	426		COLUMN ASSEMBLY (Part 1 of 2)	X			
1	P	146653	429		BLOCK, Stage	1			
2	P	146653	433		SUPPORT	1			
3	P	146653	432		SUPPORT, Right Hand	1			
4	P	93908	595		GUIDE, Shaft	2			
5	P	129359	859		OILER, Column	2			
6	P	129359	671		BEARING	4			
7	P	129359	878		WASHER, Flat	7			
8	P	129359	687		SCREW, Cap, Hexhead, 1/2-20 x 1-3/4	7			
9	P	22436	091		PLUG, Nylon Rod, 5/32 Dia. x 5/32	1			
10	P	10585	041		SCREW, Set, Hex Socket, #10-32 x 1/4	1			
11	P	129352	751		SCREW, Buttonhead Socket, #10-24 x 1/2	5			
12	P	43282	091		SCREW, Set, #10-32 x 5/16	5			
13	P	129359	690		SCREW, Self-sealing, #1/4-20 x 1/4	1			
14	P	129359	882		BEARING, Olite	2			
15	P	129359	841		SCREW, Hexhead, 3/8 -24 x 1-1/2	3			
16	P	19680	041		LOCKWASHER, 3/8	3			
17	P	17263	042		WASHER, Flat, 3/8	3			

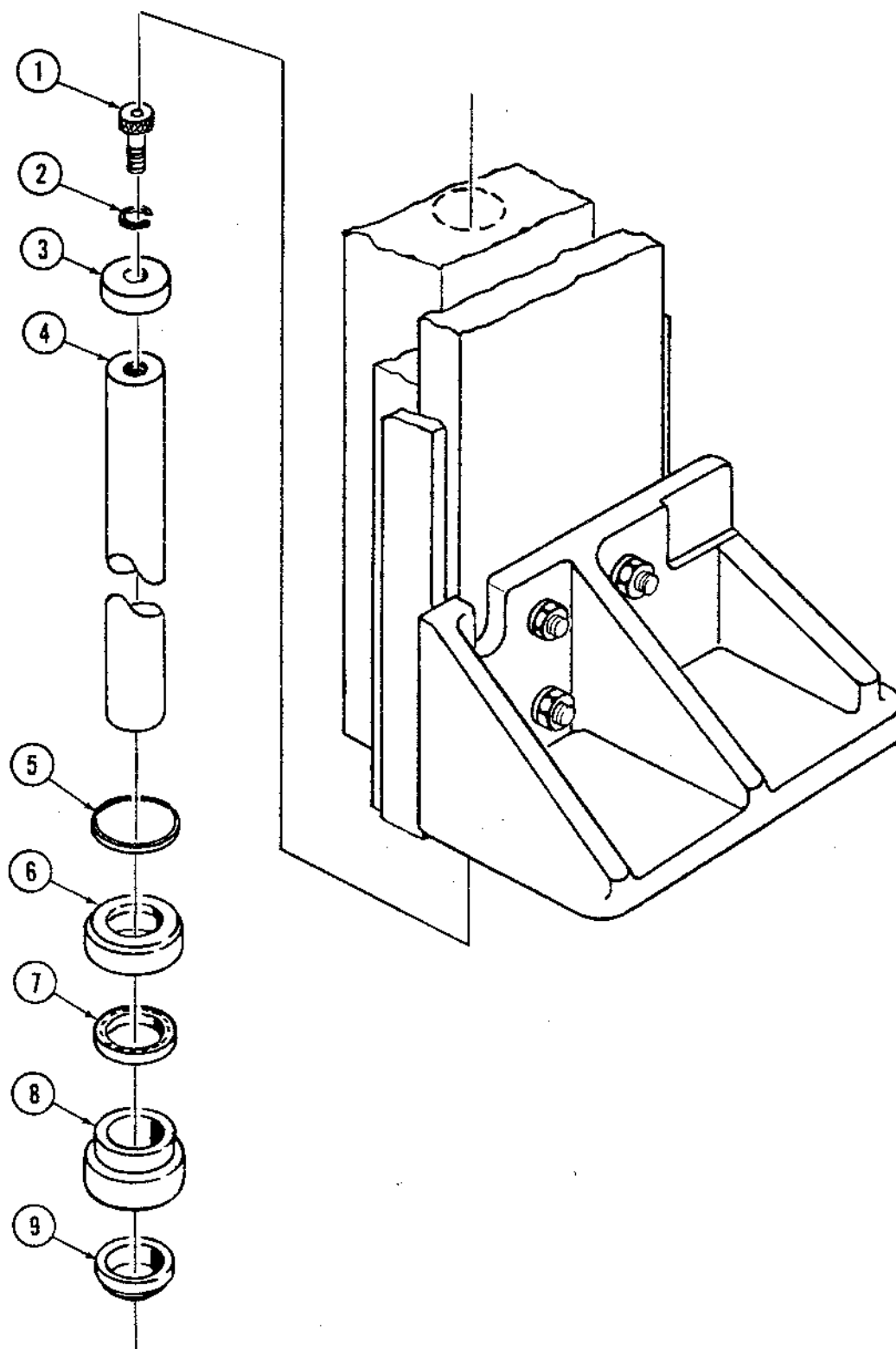


FIGURE 9-10. Column Assembly (Part 2 of 2)

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
9-10-	P	146653	426		COLUMN ASSEMBLY (Part 2 of 2)	X			
1	P	16868	041		SCREW, Cap, Sockethead, 3/8-16 x 1	1			
2	P	19680	041		LOCKWASHER, #3/8	1			
3	P	56397	238		CAP, Stop	1			
4	P	56397	237	*	RAM	1			
5	P	129359	691		O-RING	1			
6	P	93908	577		BLOCK, Bearing	1			
7	P	134469	226	*	SEAL, Reciprocating	1			
8	P	93908	591		NUT, Ram, #2-16 UNF	1			
9	P	129359	838		WIPER-SCRAPER	1			
10	P	764324	884		SPANNER WRENCH (not shown)	1			
* Whenever replacing seals or ram, replace all parts with P-764324-901, Ram/Seal Kit. Spanner wrench required, P-764324-884									

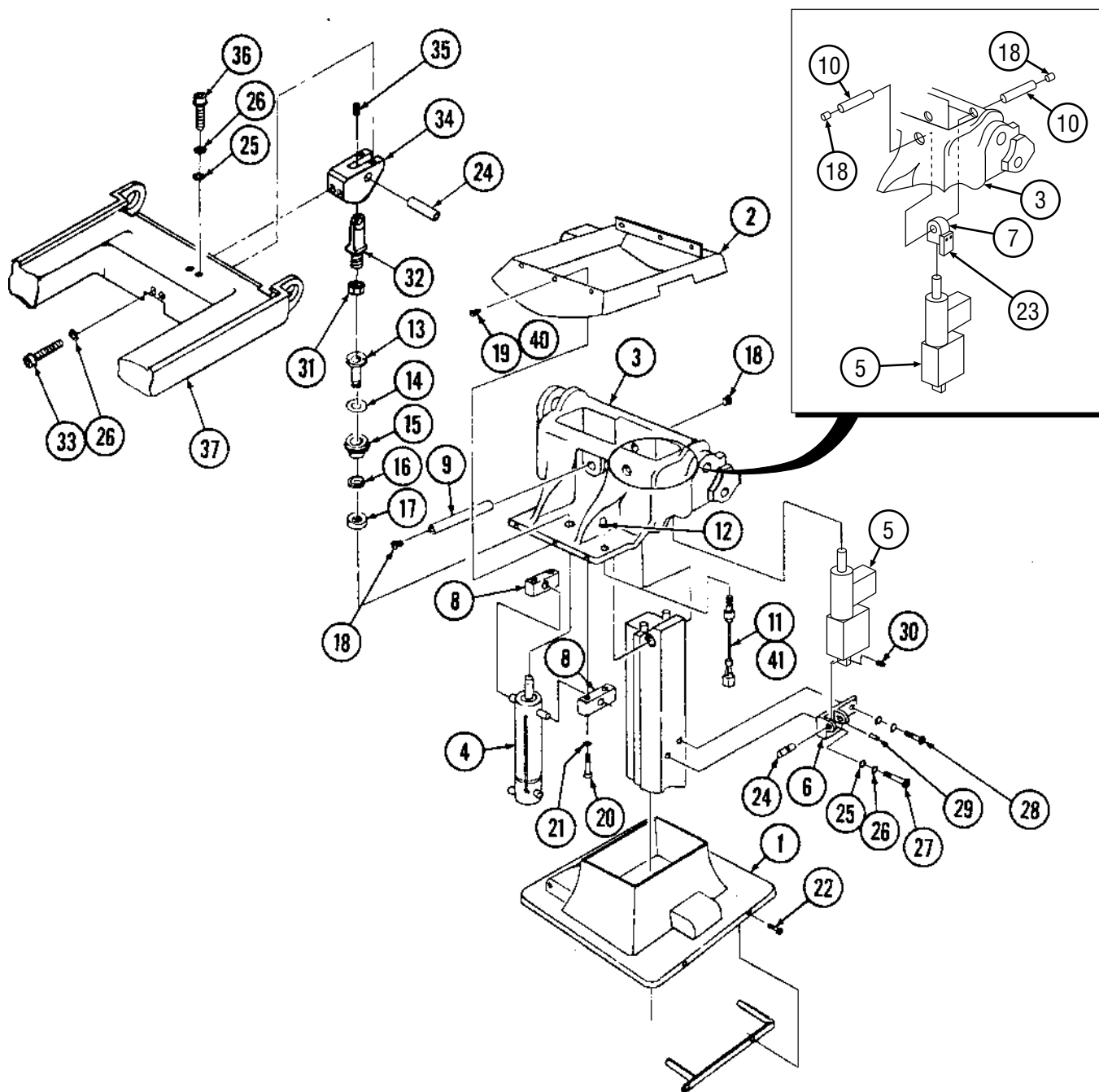


FIGURE 9-11. Table Saddle/Skirt Assembly

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
9-11-					TABLE SADDLE/SKIRT ASSEMBLY	X			
1	P	764323	283		ASSEMBLY, Shroud Cap (see Figure 9-12)	1			
2	P	141210	083		CAP, Split Skirt	1			
	P	49131	043		SCREW, Button Head #10-24 x 1/4" Long	2			
3	P	146653	435		SADDLE	1			
4	P	141210	098		CYLINDER, Hydraulic (Seat)	1			
5	P	141210	107		TILT CYLINDER	1			
6	P	136806	488		BRACKET, Tilt Cylinder	1			
7	P	150823	750		KNUCKLE, Tilt Cylinder	1			
8	P	93908	663		PAD, Pivot Mounting	2			
9	P	129359	680		PIN	1			
10	P	129359	850	*	PIN, Clevis, 3/8 Dia. x 2	2			
11	P	136807	080		ASSEMBLY, Limit Switch	1			
12	P	129360	582		BOOT, Push Button	1			
13	P	93909	411		ADAPTER	1			
14	P	129360	880		PAD, Adapter	1			
15	P	93909	412		RING	1			
16	P	129360	479		RING, Wiper	1			
17	P	93909	413		NUT	1			
18	P	129360	580		PLUG, Pipe	4			
19	P	150823	247		SCREW, Hex Socket Head #4-40 x 3/8" St. Stl.	6			
20	P	129353	302		SCREW, Cap, Sockethead, 5/16-18 x 1-1/2	4			
21	P	19691	061		LOCKWASHER, 5/16	4			
22	P	129360	882		SCREW, Cap, Hex Sockethead, #10-24 x 3/8	4			
23	P	150823	744		LOCKING PLATE	1			
24	P	129360	175		PIN, Dowel, 3/8 x 1-1/2	2			
25	P	49134	061		WASHER, Flat, 1/4	6			
26	P	19678	045		LOCKWASHER, 1/4	6			
27	P	36684	045		SCREW, Cap, Sockethead, 1/4-28 x 1-1/4	1			
28	P	37676	061		SCREW, Cap, Sockethead, 1/4-28 x 5/8	1			
29	P	45605	061		PIN, Roll, 1/4 x 3/4	1			
30	P	36883	061		SCREW, Set (Cup Point), #10-32 x 3/8	1			
31	P	16055	045		NUT, Jam, 1/2-20	1			
32	P	129359	737		KNUCKLE, Seat Lift Cylinder	1			
33	P	91521	091		SCREW, Cap, Sockethead, 1/4-20 x 2-1/4	2			
34	P	136806	496		CLEVIS, Seat Section	1			
35	P	10585	041		SCREW, Set (Cup Point), #10-32 x 1/4	1			
36	P	11266	045		SCREW, Cap, Sockethead, 1/4-20 x 1	2			
37	P	146655	479		FRAME, Seat Section	1			
38	P	146653	428		SUPPORT, Shroud Mounting	1			
39	P	93909	795		LABEL, Warning (Electric Table Only)	1			
40	P	150824	001		WASHER, Flat #4 x 5/16 OD	6			
41	P	150476	930		BASE, Mounting	1			
* Early -04 tables may have one 4" pin; change to two 2" pins.									

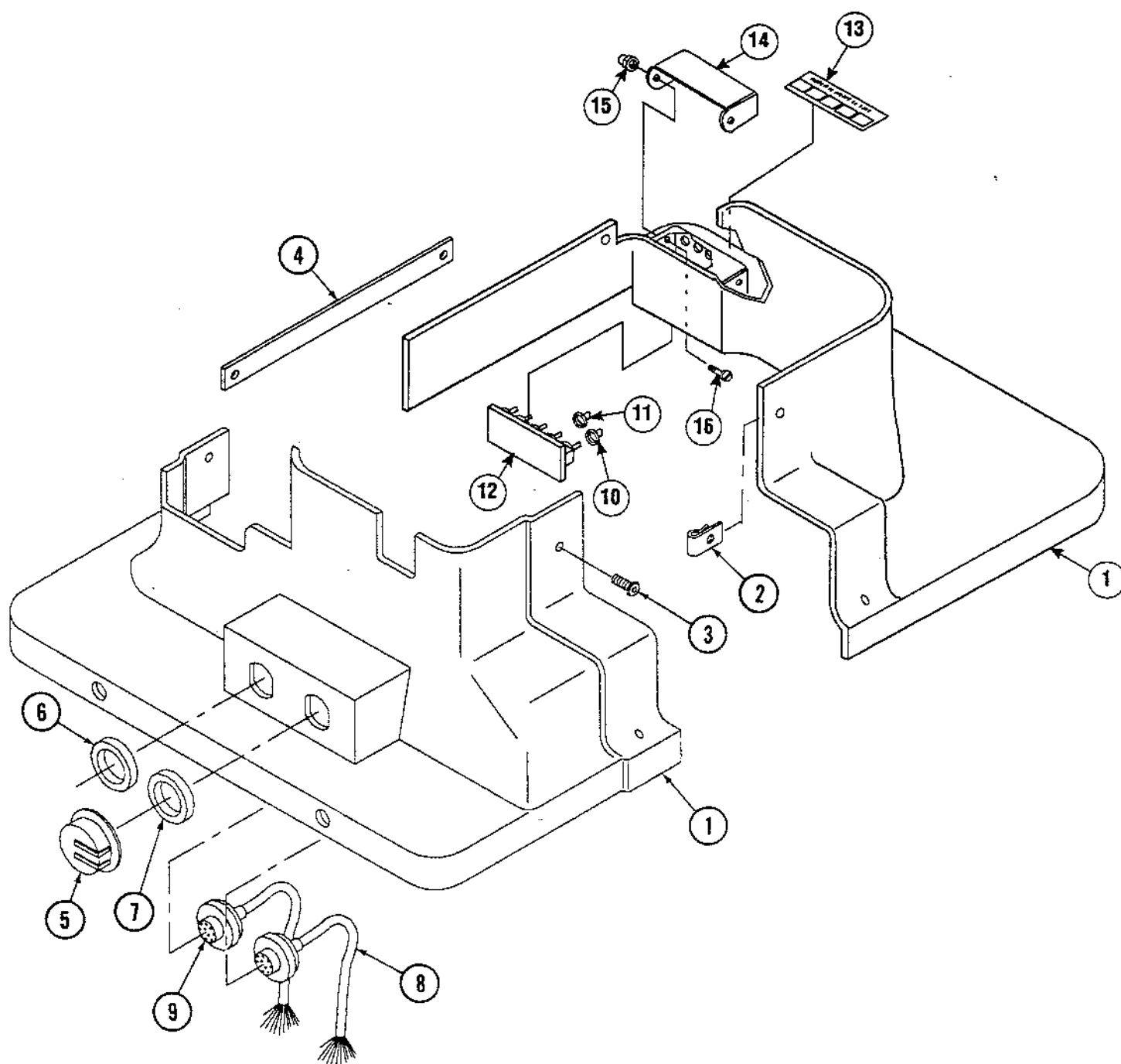


FIGURE 9-12. Shroud Cap Assembly

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
9-12-					SHROUD CAP ASSEMBLY	X			
1	P	764323	283	*	KIT, Shroud Cap Assembly (2-piece)	1			
2	P	150823	245		NUT, Speed	5			
3	P	129352	751		SCREW, Hex Socket, Button Head Cap, #10-24x1/2" Long	5			
4	P	150823	199		STRAP, Shroud	1			
5	P	129360	275		SPRING, Dust Cap	2			
6	P	129360	562		WASHER, Insulating (Grey) (Foot Control)	1			
7	P	129360	563		WASHER, Insulating (Red) (Hand Control)	1			
8	P	136806	819		ASSEMBLY, Cable, Hand Control	1			
9	P	136807	027		ASSEMBLY, Cable, Foot Control	1			
10	P	129360	352		BOOT SEAL, Toggle (Red)	1			
11	P	129360	351		BOOT SEAL, Toggle (Grey)	4			
12	P	93909	295		ASSEMBLY, Override Switch Board	1			
13	P	93909	401		DECAL, Override Switch	1			
14	P	136807	809		COVER	1			
15	P	129360	881		NUT	2			
16	P	129360	657		SCREW	2			
	P	136807	031		CABLE ASSEMBLY, Override (P9 to P10) (not shown)	1			

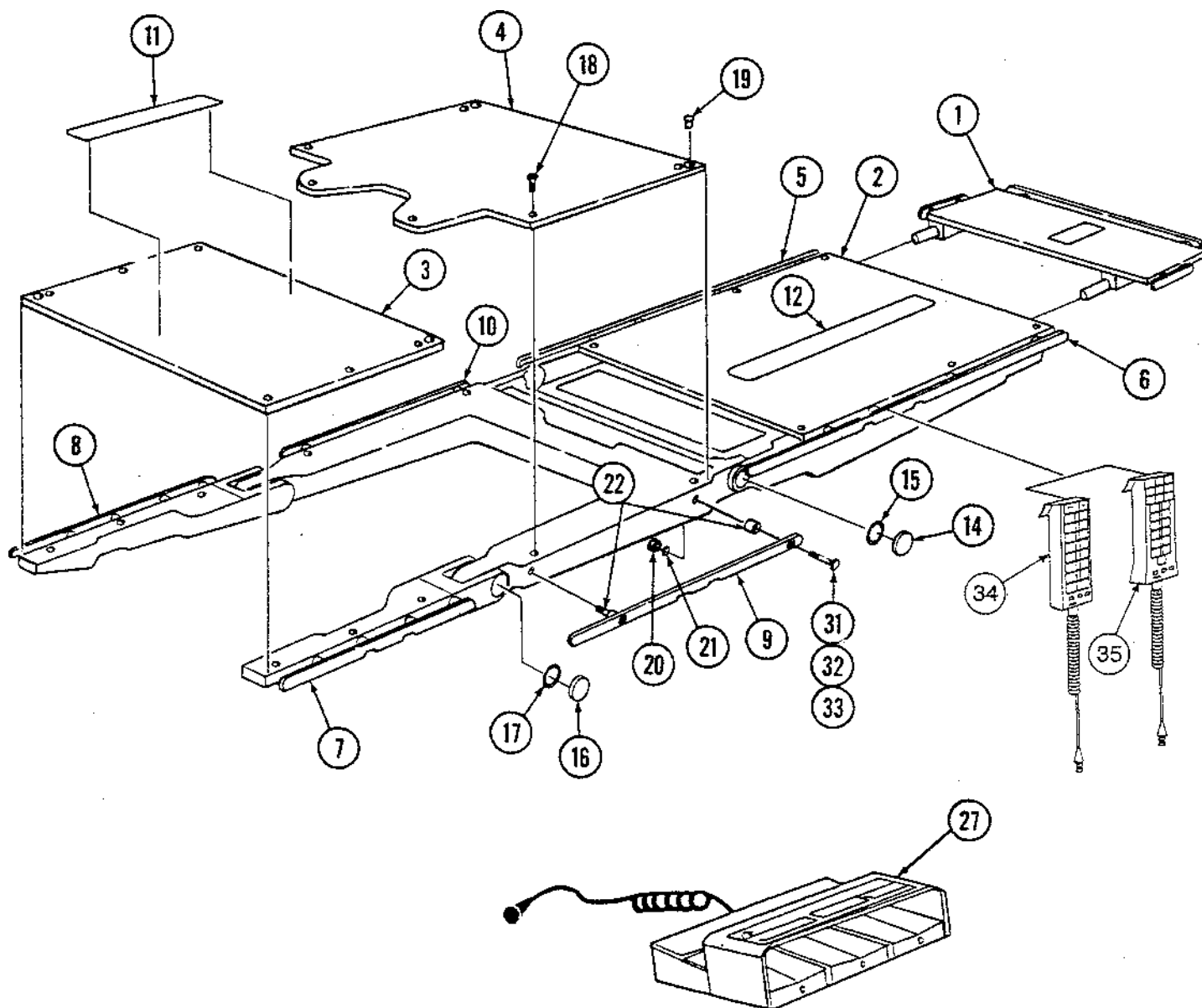


FIGURE 9-13. Tabletop and Side Rail Assembly

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
9-13-					TABLETOP AND SIDE RAIL ASSEMBLY - RC	X			
					TABLETOP AND SIDE RAIL ASSEMBLY - RL		X		
1	P	146653	770		ASSEMBLY, Headrest, (see Figure 9-20)	1	1		
2	P	764324	054		TOP, Back Section	1	1		
3	P	764324	055		TOP, Leg Section	1	1		
	P	93909	539		TOP, Leg Section (Andrews Frame)	1	1		
4	P	764324	056		TOP, Seat Section	1	1		
5	P	56397	213		RAIL, Side, Back Section, Right Hand	1	1		
6	P	56397	214		RAIL, Side, Back Section, Left Hand	1	1		
7	P	56397	206		RAIL, Side, Leg Section, Left Hand	1	1		
	P	93909	537		RAIL, Side, Leg Section, Left Hand (Andrews Frame)	1	1		
8	P	56397	205		RAIL, Side, Leg Section, Right Hand	1	1		
	P	93909	536		RAIL, Side, Leg Section, Right Hand (Andrews Frame)	1	1		
9	P	56397	210		RAIL, Side, Seat Section, Left Hand	1	1		
10	P	56397	209		RAIL, Side, Seat Section, Right Hand	1	1		
11	P	129360	500		FASTENER, Hook, 16-1/2 Long (see Note)	1	1		
12	P	129360	552		FASTENER, Hook, 17 Long (see Note)	1	1		
	P	764325	933		• VELCRO ADHESIVE, #45	1	1		
13	P				Item # Not Used				
14	P	93909	366	*	CAP, Pivot, 1-7/8"	2	2		
15	P	129360	171	*	TAPE, Adhesive, Pivot	2	2		
16	P	129360	172	*	CAP, Pivot, 3"	2	2		
17	P	129359	894	*	TAPE, Adhesive, Pivot	2	2		
18	P	150055	001		SCREW, Truss Head, 1/4-20 x 7/8	16	16		
19	P	129357	090		INSERT	6	6		
20	P	36545	061		NUT, Hex, 5/16-18	20	20		
21	P	91147	061		LOCKWASHER, External Tooth, 5/16	20	20		
22	P	150823	276		SPACER, Side Rails	20	20		
23	P	136806	811		PAD, Leg Section, 2"	1	1		
24	P	136806	813		PAD, Head Section, 2"	1	1		
25	P	136806	815		PAD, Back/Seat Section	1	1		
26	P	75664	061		SCREWS, Machine, Countersunk (Andrews Frame)	6	6		
27	P	93909	527		Foot Control	1	1		
28	P	134469	291		PAD, Akros Head Section (not shown)	1	1		
29	P	134469	292		PAD, Akros Back/Seat Section (not shown)	1	1		
30	P	134469	293		PAD, Akros Leg Section (not shown)	1	1		
31	P	42637	056		SCREW, Flat Head 5/16-18 x 1-1/2" Long	18	18		
32	P	150823	273		SCREW, Flat Head 5/16-18 x 2" Long	1	1		
33	P	150823	274		SCREW, Flat Head 5/16-18 x 2-1/2" Long	1	1		
34	P			**	HAND CONTROL, RC & RL - Pre '92 (see Figure 3-3)	1			
35	P	141210	208	**	HAND CONTROL, RL - Post '92 (see Figure 3-3)		1		
	P	141210	154		HAND CONTROL, RC - Post '92 (see Figure 3-3)	1			
					POST '92 HAND CONTROL REPAIR KITS:				
		764325	630		• KIT, Control Housing Bracket, RL/SP		1		
		764325	631		• KIT, Control Housing Bracket, RC	1			
		764325	633		• PC BOARD Replacement	1	1		
		764325	629		• KIT, Control Cord Replacement	1	1		
					Notes:				
					* Items 14 & 15 should be ordered together.				
					* Items 16 & 17 should be ordered together.				
					**Item 34 is not a serviceable unit, order out either an RC or RL				
					Hand Control unit.				



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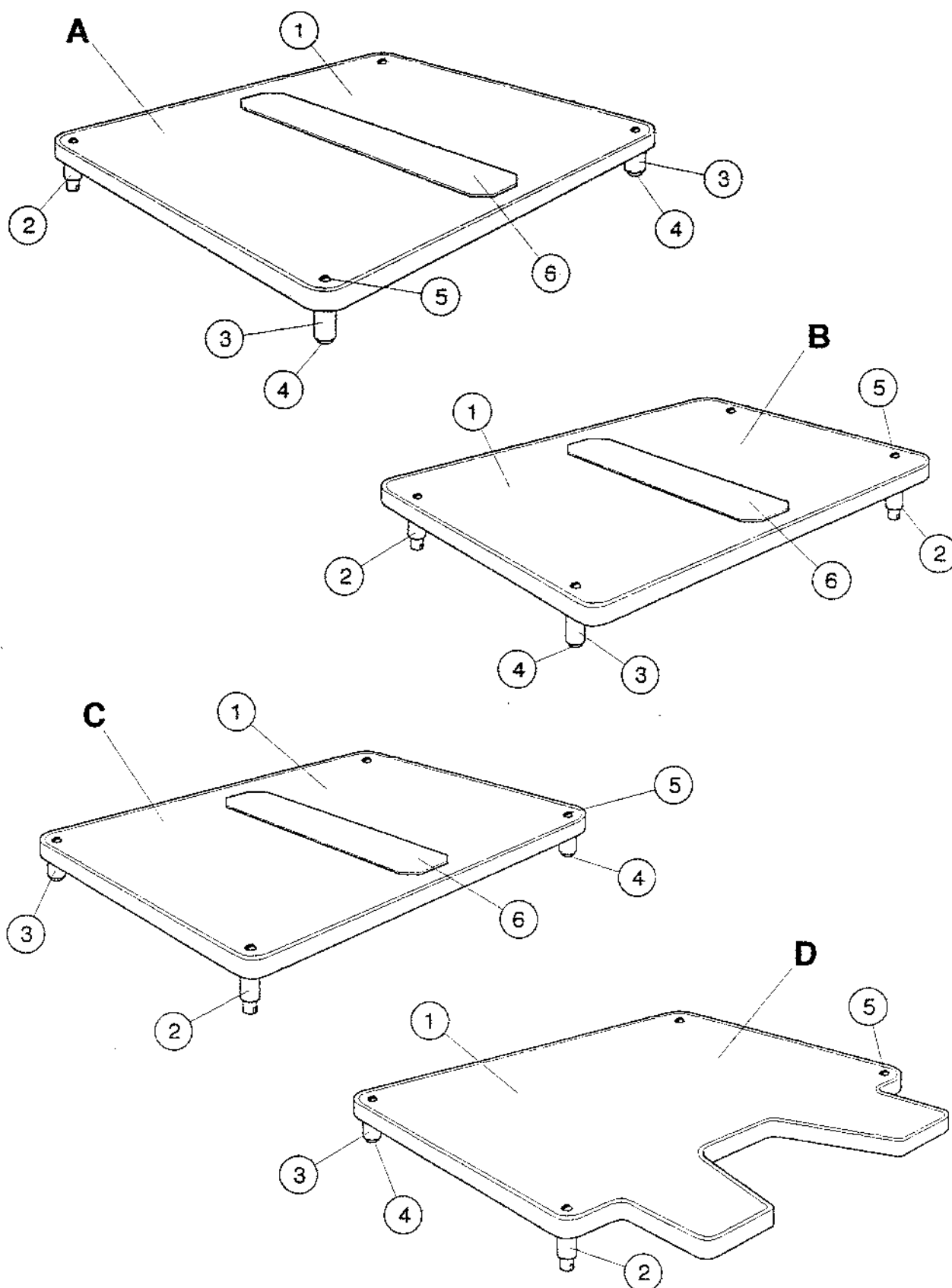


FIGURE 9-13a. Tabletop Assembly

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
9-13a-					X-RAY TOPS (RL/SP)	X			
A	P	136807	044		X-RAY TOP ASSEMBLY, Back Section	1			
1	P	93909	289		• X-RAY TOP, Back Section	1			
2	P	93909	299		• ASSEMBLY, Spacer	2			
3	P	129360	349		• SPACER	2			
4	P	129360	481		• BUMPON	2			
5	P	150055	001		• SCREW, Truss Head	4			
6	P	129360	552	*	• FASTENER, Hook	A/R			
B	P	136807	045		X-RAY TOP ASSEMBLY, Head Section	1			
1	P	93909	286		• X-RAY TOP, Head Section	1			
2	P	93909	299		• SPACER ASSEMBLY	2			
3	P	129360	349		• SPACER	2			
4	P	129360	481		• BUMPON	2			
5	P	150055	001		• SCREW, Truss Head	4			
6	P	129360	551	*	• FASTENER, Hook	A/R			
C	P	136807	042		X-RAY TOP ASSEMBLY, Leg Section	1			
1	P	93909	287		• X-RAY TOP, Leg Section	1			
2	P	93909	299		• SPACER ASSEMBLY	2			
3	P	129360	349		• SPACER	2			
4	P	129360	481		• BUMPON	2			
5	P	150055	001		• SCREW, Truss Head	4			
6	P	129360	552	*	• FASTENER, Hook	A/R			
D	P	136807	043		X-RAY TOP ASSEMBLY, Seat Section	1			
1	P	93909	288		• X-RAY TOP, Seat Section	1			
2	P	93909	299		• SPACER ASSEMBLY	2			
3	P	129360	349		• SPACER	2			
4	P	129360	481		• BUMPON	2			
5	P	150055	001		• SCREW, Truss Head	4			
* Use Velcro Adhesive #45 (P-764325-933).									

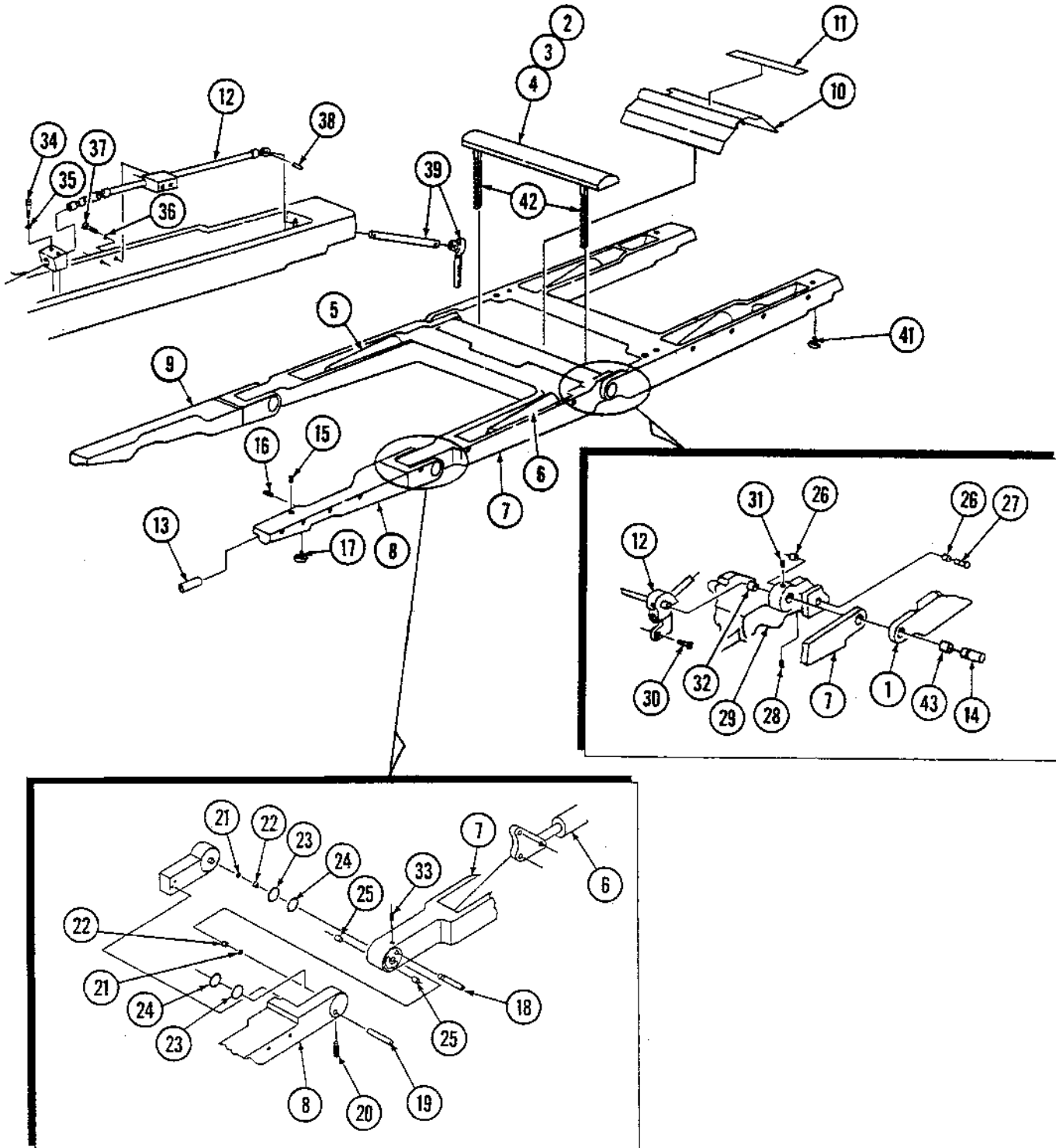


FIGURE 9-14. Tabletop Assembly

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
9-14-					TABLETOP ASSEMBLY - RC	X			
					TABLETOP ASSEMBLY - RL		X		
1					ASSEMBLY, Back Section (see Figure 9-15)	1	1		
2	P	136807	076		ASSEMBLY, Kidney Bridge and Rack	1	1		
3	P	3952	041		SCREW, Roundhead, Machine, 1/4-20 x 1/2 Long	2	1		
4	P	3999	041		SCREW, Roundhead, Machine, 1/4-20 x 5/8 Long	2	1		
5	P	146655	464		ASSEMBLY, Hydraulic Cylinder, Right Hand Leg (w/Flow Fuse)	1	1		
6	P	146655	463		ASSEMBLY, Hydraulic Cylinder, Left Hand Leg (w/Check Valve)	1	1		
7					ASSEMBLY, Seat Section (see Figure 9-18)	1	1		
8	P	146653	785		ASSEMBLY, Leg Section, Left Side (see Figure 9-19)	1	1		
9	P	146653	786		ASSEMBLY, Leg Section, Right Side (see Figure 9-19)	1	1		
10	P	136807	118		COVER, Saddle	1	1		
11	P	129360	687		FASTENER, Hook, 1 x 7	1	1		
12	P	146653	926		ASSEMBLY, Kidney Bridge Shaft (see Figure 9-16)	1	1		
13	P	93909	431		BEARING, Mounting	2	2		
14	P	129359	689		PIN, Pivot	2	2		
15	P	90348	061		PIN, Roll, 1/8 x 3/8	2	2		
16	P	35139	061		SCREW, Set (Cup Point), #6-32 x 1/4	2	2		
17	P	77559	056		ASSEMBLY, Knob	2	2		
18	P	129359	746		PIN, 5/8 Diameter x 2-1/2	2	2		
19	P	129359	738		PIN, 1/2 Diameter x 3	2	2		
20	P	150763	001		SCREW, Set (Half Dog), #8-32 x 1/4	4	4		
21	P	129359	748		WASHER, Thrust, 1 OD x 9/16 ID x 1/16 THK	4	4		
22	P	129359	750		BEARING, Sleeve	4	4		
23	P	129360	162		ASSEMBLY, Hinge Seal	4	4		
24	P	129360	161		BEARING, Hinge Seal	4	4		
25	P	129359	740		SPACER, Pin	4	4		
26	P	93908	827		BEARING, Nylon Flange	4	4		
27	P	129359	693		PIN	2	2		
28	P	15263	091		SCREW, Set (Cone Point), 1/4-20 x 1/4	2	2		
29	P	146653	435		SADDLE	1	1		
30	P	74117	061		SCREW, Cap, Sockethead, 1/4-20 x 3/8	2	2		
31	P	129360	581		SCREW, Set (Cup Point), 1/4-20 x 1/2	2	2		
32	P	129360	579		BEARING	2	2		
33	P	10585	041		SCREW, Set (Cup Point), #10-32 x 1/4	5	5		
34	P	129360	694		SCREW, Cap, Sockethead, #8-32 x 1-1/2	2	2		
35	P	19690	061		LOCKWASHER, #8	2	2		
36	P	46115	091		LOCKWASHER, #10	2	2		
37	P	9298	041		SCREW, Roundhead, #10-32 x 1/2	2	2		
38	P	41511	061		PIN, Groove, 5/32 x 5/8	1	1		
39	P	93909	474		ASSEMBLY, Kidney Bridge Handle (see Figure 9-17)	1	1		
40					Item # Not Used				
41	P	93909	192		KNOB, 5/16-18	2	2		
42	P	129359	653		RACK	2	2		
43	P	93908	828		BEARING	4	4		



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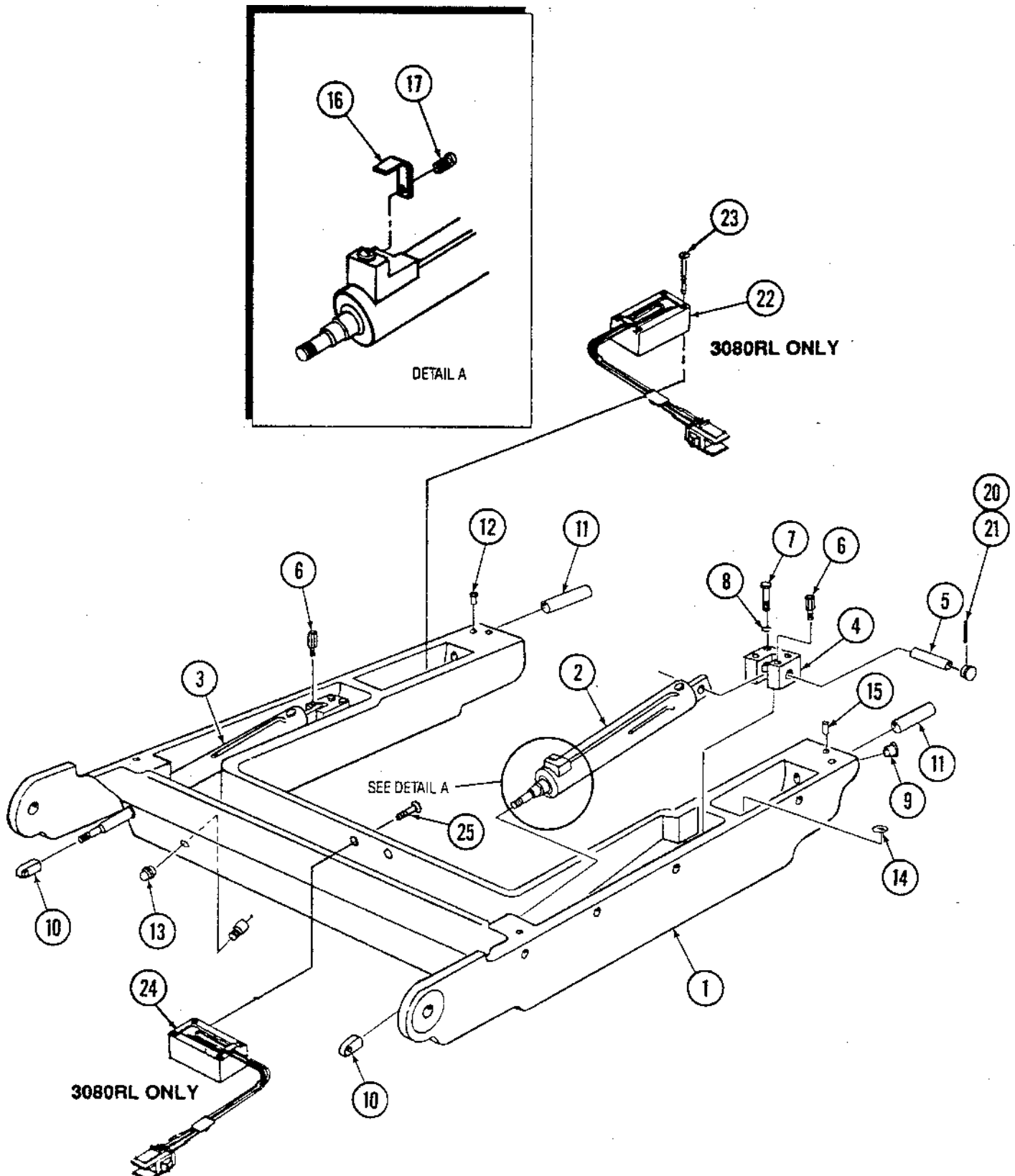


FIGURE 9-15. Back Section Assembly

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
9-15-					BACK SECTION ASSEMBLY - RC	X			
					BACK SECTION ASSEMBLY - RL		X		
	1	P	146655	478	BACK SECTION	1	1		
	2	P	141210	096	CYLINDER, Hydraulic (w/Check Valve)	1	1		
	3	P	141210	099	CYLINDER, Hydraulic (w/Flow Fuse)	1	1		
	4	P	136806	481	BRACKET, Cylinder	2	2		
	5	P	129359	850	PIN, Dowel, 3/8 Dia. x 2	2	2		
	6	P	129359	849	STANDOFF, 1/4-20	2	2		
	7	P	52718	091	SCREW, Cap, Sockethead, 1/4-20 x 2	4	4		
	8	P	19678	045	LOCKWASHER, 1/4	4	4		
	9	P	129359	853	BEARING, Olite	1	1		
	10	P	129359	652	CLEVIS, Cylinder	2	2		
	11	P	93909	431	BEARING, Headrest Mounting	4	4		
	12	P	129359	861	INSERT, Screw Lock, 1/4-20	16	16		
	13	P	129360	582	BOOT, Limit Switch	2	2		
	14	P	129360	483	STICKER, Neutral Ground	1	1		
	15	P	90348	061	SPRING, Pin, 1/8 x 3/8	4	4		
	16	P	129360	583	CLAMP, Hose	1	1		
	17	P	129352	751	SCREW, Hex Socket, Buttonhead, #10-24 x 1/2 Long	1	1		
	18	P	93909	374	PLATE - Data (not shown)	1	1		
	19	P	93909	375	LABEL - Patent (not shown)	1	1		
	20	P	150823	198	PLUG, Button	2	2		
	21	P	150823	203	PIN, Dowel 3/8" Dia. x 2-1/2" Long	2	2		
	22	P	136807	727	ASSEMBLY, Mercury Switch (P-34)		1		
	23	P	118407	045	SCREW, Pan Head #6-32 x 1" Long		2		
	24	P	136807	728	ASSEMBLY, Mercury Switch (P-33)		1		
	25	P	81681	003	SCREW, Round Head #6-32 x 1/4" Long		2		

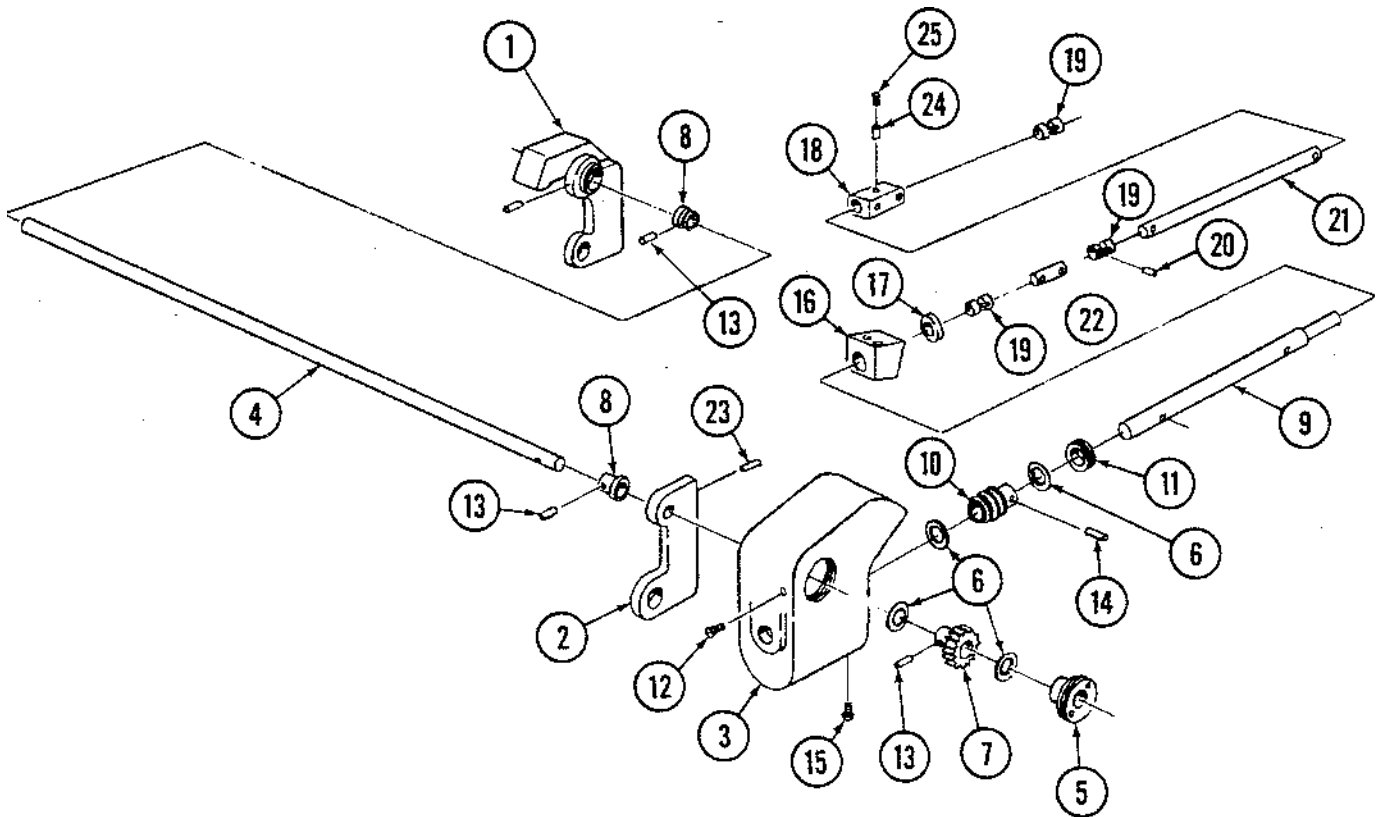
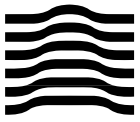


FIGURE 9-16. Kidney Bridge Shaft Assembly

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
9-16-	P	146653	926		KIDNEY BRIDGE SHAFT ASSEMBLY	X			
1	P	136806	486		STABILIZER, Right Hand	1			
2	P	136806	487		STABILIZER, Left Hand	1			
3	P	136806	460		BOX, Gear	1			
4	P	93908	584		SHAFT, Cross, 1/2 Dia. x 15-5/8	1			
5	P	16285	042		BEARING	1			
6	P	50713	091		BEARING, Thrust	4			
7	P	16247	091		GEAR, Worm	1			
8	P	15220	045		GEAR, Spur	2			
9	P	129359	684		SHAFT, Worm End	1			
10	P	16234	091		WORM	1			
11	P	16186	042		NUT, Adjusting	1			
12	P	90623	045		SCREW, Machine, Roundhead, #8-32 x 5/16	1			
13	P	24700	061		PIN, Grooved, 3/16 x 1	3			
14	P	30092	061		PIN, Grooved, 5/32 x 3/4	1			
15	P	3967	041		SCREW, Machine, Roundhead, #8-32 x 1/4	1			
16	P	93908	640		BLOCK, Kidney Bridge Linkage	1			
17	P	129359	702		BEARING, Spherical	1			
18	P	129359	718		BLOCK, Support	1			
19	P	20200	045		JOINT, Universal	3			
20	P	41511	061		PIN, Groove, 5/32 x 5/8	5			
21	P	129359	686		SHAFT, 3/8 Dia. x 6-1/4	1			
22	P	129359	720		SHAFT, 3/8 Dia. x 1-3/8	1			
23	P	45591	061		PIN, Roll, .103 Dia. x 1/2	2			
24	P	129360	230		BUMPER, Rubber	1			
25	P	4772	045		SCREW, Set, Hex Socket, 1/4-20 x 1/4	1			
26	P	93909	733		LABEL, Kidney Bridge Control	1			

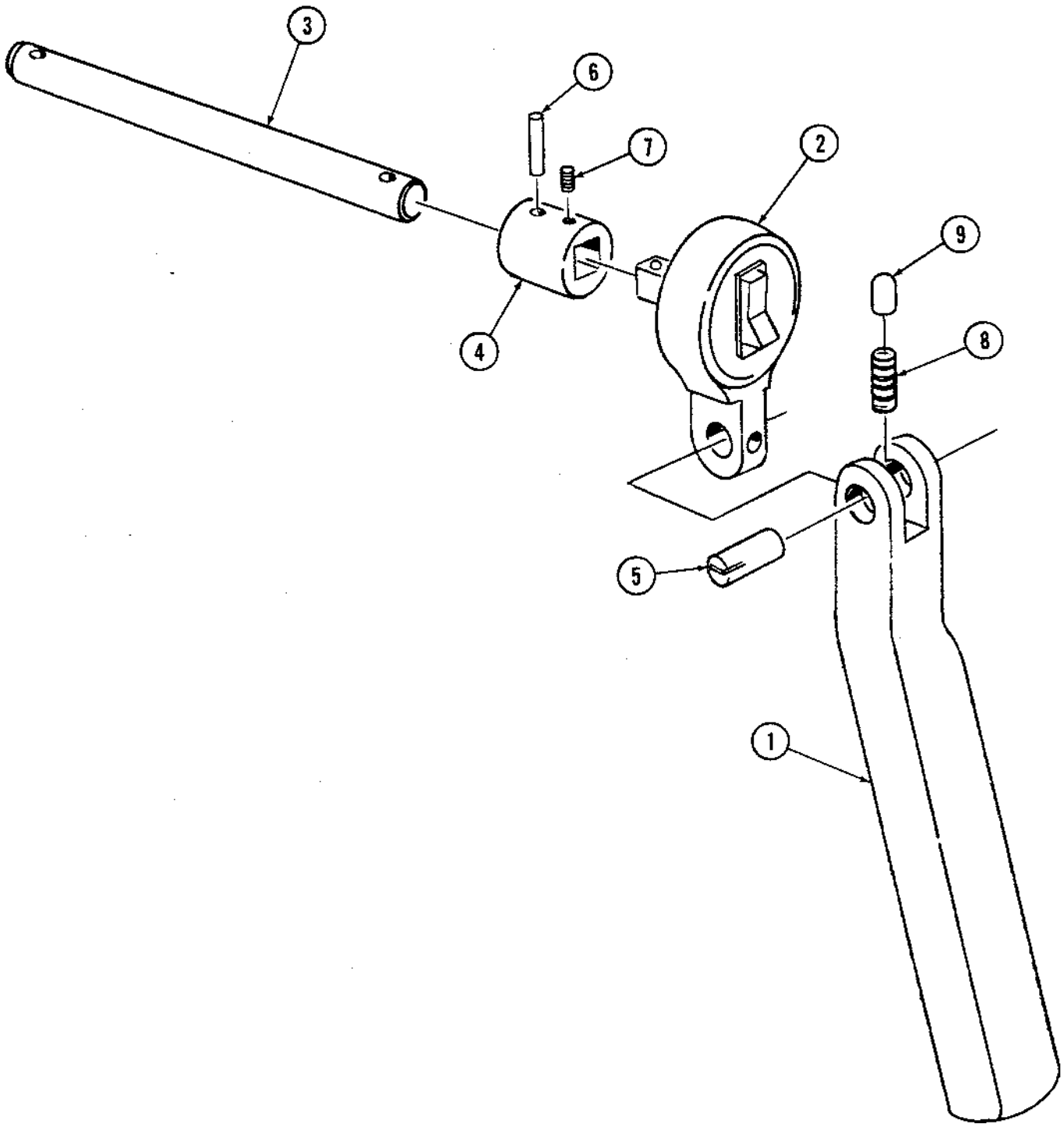
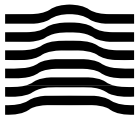


FIGURE 9-17. Kidney Bridge Handle Assembly

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
9-17-	P	93909	474		KIDNEY BRIDGE HANDLE ASSEMBLY	X			
1	P	136806	457		HANDLE, Kidney Bridge	1			
2	P	93908	662		RATCHET	1			
3	P	129359	685		SHAFT	1			
4	P	129359	681		SOCKET, Drive	1			
5	P	129360	266		PIN, Grooved	1			
6	P	41511	061		PIN, Grooved	1			
7	P	52004	061		SCREW, Set, #10-32 x 1/4	1			
8	P	129360	265		SPRING, Compression	1			
9	P	129360	264		PLUNGER	1			

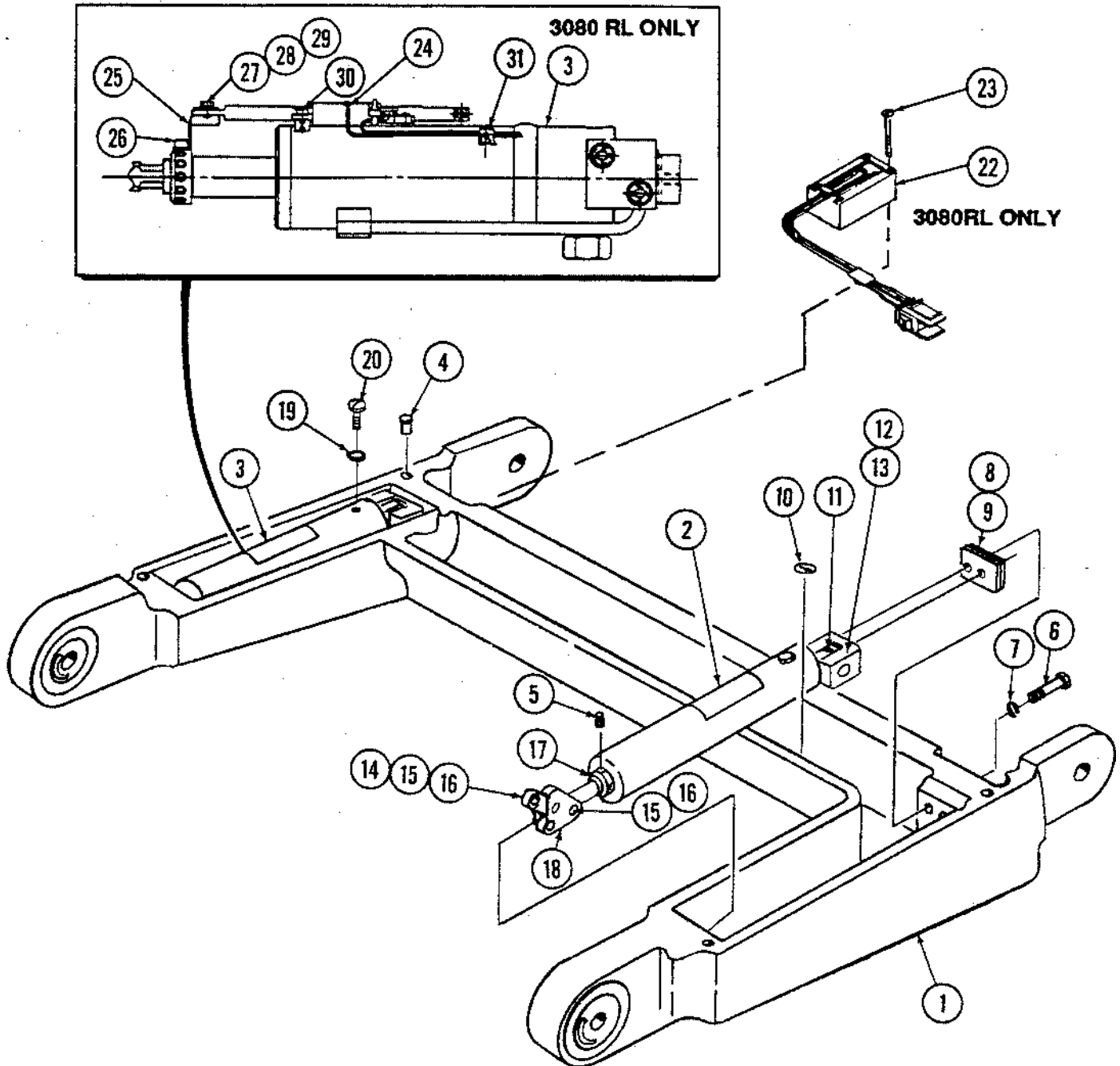
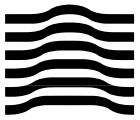


FIGURE 9-18. Seat Section Assembly

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
9-18-					SEAT SECTION ASSEMBLY - RC	X			
					SEAT SECTION ASSEMBLY - RL		X		
	1	P	146655	479	FRAME, Seat Section w/Bearing	1	1		
	2	P	146655	463	ASSEMBLY, Hydraulic Cylinder, Left Hand		1		
	3	P	146655	464	ASSEMBLY, Hydraulic Cylinder, Right Hand		1		
	4	P	129359	861	INSERT, Screw Lock, 1/4-20	4	4		
	5	P	129360	678	SCREW, Set, Hex Socket, #8-32 x 1/4	2	2		
	6	P	12176	041	SCREW, Cap, Hexhead, 1/4-20 x 3/4	4	4		
	7	P	150620	001	WASHER, Flat	4	4		
	8	P	129359	836	SHIM, .010 Thick	4	4		
	9	P	129360	498	SHIM, .063 Thick	2	2		
	10	P	129360	483	STICKER, Neutral Ground	2	2		
	11	P	43293	091	SCREW, Set, #10-32 x 3/8 Long	2			
	12	P	93908	667	CLEVIS, Cylinder	2			
	13	P	129359	891	PIN, 1/2 Diameter x 1-1/2 Long	2			
	14	P	93908	657	LINK, Input	2			
	15	P	129359	827	PIN, 1/2 Diameter x 1-1/4 Long	4			
	16	P	27429	091	SCREW, Set, #8-32 x 3/16 Long	4			
	17	P	129359	832	STOP, Cylinder Rod	1			
		P	129361	770	STOP, Cylinder Rod		1		
	18	P	93908	655	LINK, Coupler	2			
	19				O-RING	1	1		
	20		129359	690	BLEED SCREW ASSEMBLY	1	1		
	21	P	150823	234	KIT, Anti-Chatter	1			
			56397	182	ASSEMBLY, Fitting Orifice (.026)	A/R			
			56397	183	ASSEMBLY, Fitting Orifice (.022)	A/R			
			56397	184	ASSEMBLY, Fitting Orifice (.018)	A/R			
			129359	667	O-RING	A/R			
	22	P	136807	726	ASSEMBLY, Mercury Switch (P-35)		1		
	23	P	118407	045	SCREW, Pan Head #6-32 x 1" Long		2		
	24	P	136807	731	ASSEMBLY, Self-leveling		1		
	25	P	93910	602	BRACKET, Support Cam		1		
	26	P	129361	761	SCREW, Socket Head #8-32 x 1/4" Long		1		
	27	P	129361	760	SCREW, Hex Head #6-32 x 1/4" Long		1		
	28	P	84114	002	WASHER, Flat Head #6		1		
	29	P	84116	002	LOCKWASHER, #6 Internal Tooth		1		
	30	P	129361	758	SCREW, Socket Head Shoulder #4-40 x 3/16 Long		1		
	31	P	93910	625	CLAMP, Cable		1		

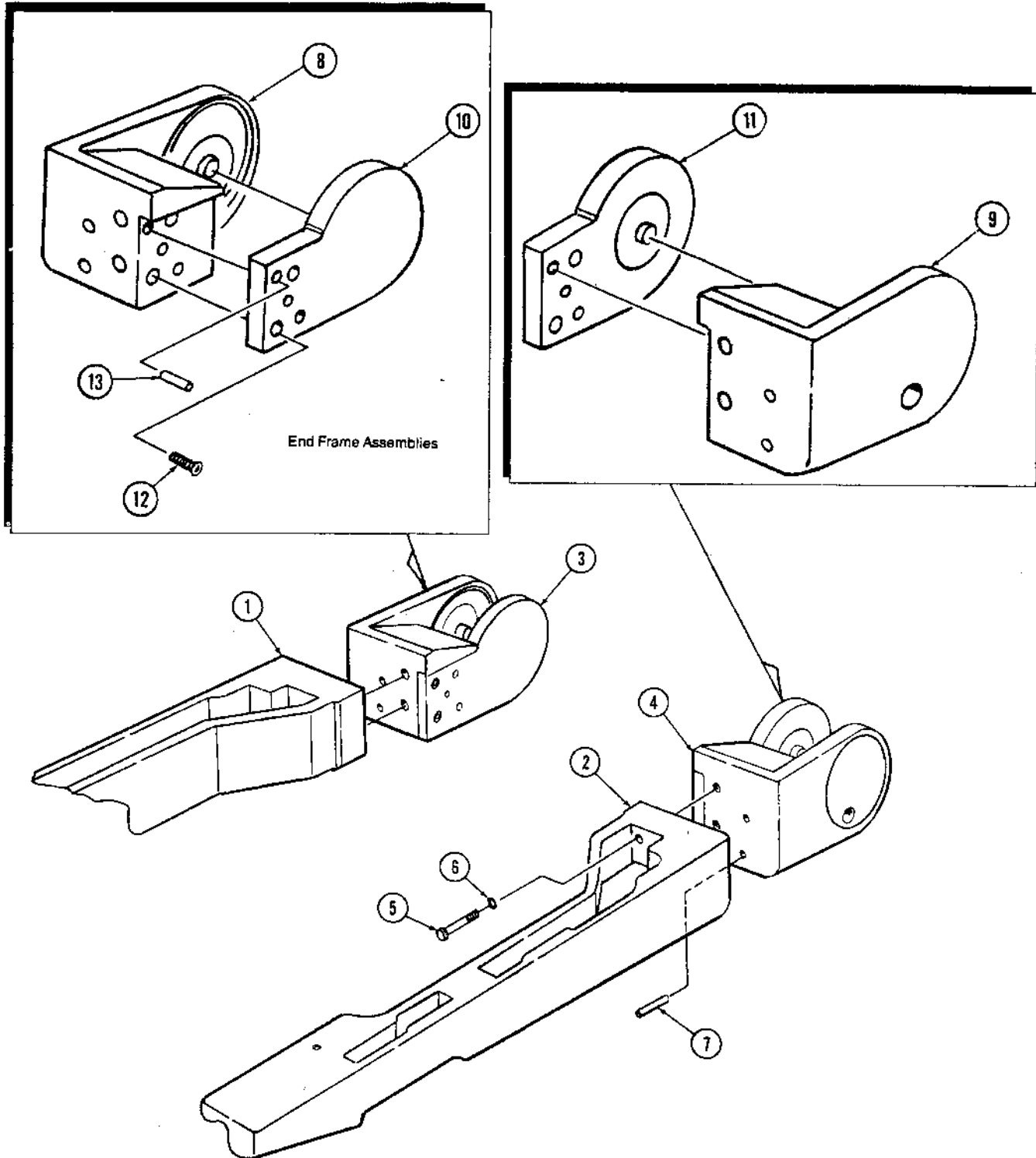


FIGURE 9-19. Leg Section Assemblies

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
9-19-	P	146653	785		LEG SECTION ASSEMBLY, Left Side	X			
	P	146653	786		LEG SECTION ASSEMBLY, Right Side		X		
1	P	146653	440		FRAME, Right Side			1	
2	P	146653	438		FRAME, Left Side	1			
3	P	146653	446		ASSEMBLY, End Frame, Right Side (see Items #8-13)			1	
4	P	146653	447		ASSEMBLY, End Frame, Left Side (see Items #8-13)	1			
5	P	44746	045		SCREW, Cap, 3/8-16 x 1-1/4	2		2	
6	P	19680	041		WASHER, Helical Spring, 3/8	2		2	
7	P	129359	864		PIN, Spirol, 1/4 Dia. x 1-1/2	2		2	
8	P	146653	451		• FRAME, End, Outer Right Side			1	
9	P	146653	450		• FRAME, End, Outer Left Side	1			
10	P	146653	448		• FRAME, End, Inner Right Side			1	
11	P	146653	449		• FRAME, End, Inner Left Side	1			
12	P	150823	064		• SCREW, Socket Flathead, 1/4-20 x 1	2		2	
13	P	15294	091		• PIN, Dowel, 5/16 Diameter x 1	2		2	

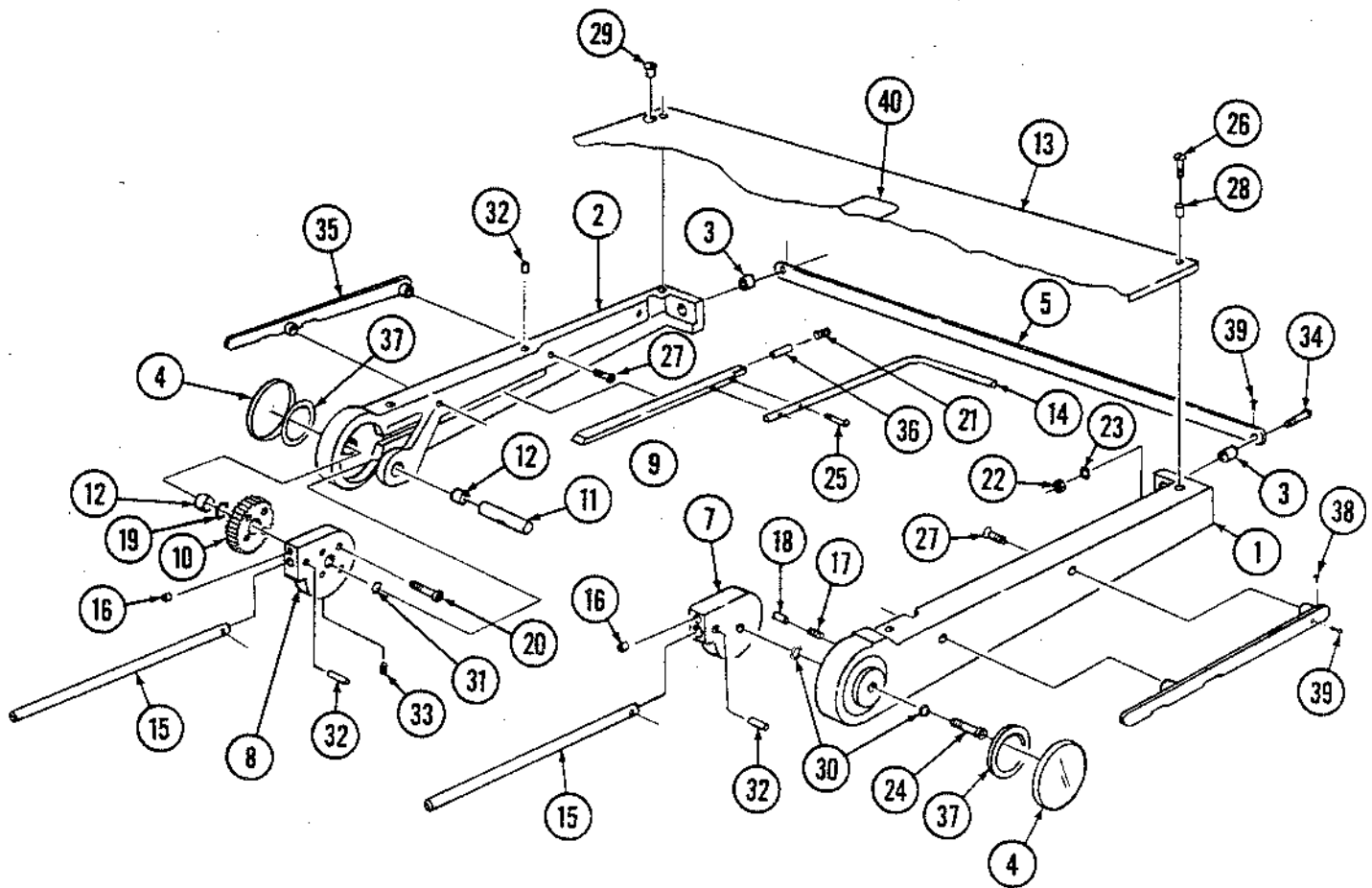
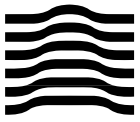


FIGURE 9-20. Headrest Assembly

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
9-20-	P	146653	770		HEADREST ASSEMBLY	X			
1	P	146653	766		FRAME, Side, Left Hand	1			
2	P	146653	768		FRAME, Side, Right Hand	1			
3	P	15171	042		SPACER	2			
4	P	93909	366		CAP, Pivot	2			
5	P	93909	204		RAIL, End	1			
6	P	93909	372		ASSEMBLY, Side Rail, Left Hand	1			
7	P	136806	499		BLOCK, Support, Left Hand	1			
8	P	136806	500		BLOCK, Support, Right Hand	1			
9	P	136806	494		PAWL	1			
10	P	93909	191		RATCHET	1			
11	P	129360	253		SHAFT	1			
12	P	129360	249		BEARING, Sleeve	1			
13	P	93908	590		TOP, Headrest	1			
14	P	93909	196		HANDLE	1			
15	P	93909	190		SHAFT	2			
16	P	129360	230		BUMPER, Rubber	2			
17	P	129360	228		SPRING, Compression	4			
18	P	129360	229		STOP, Nylon	4			
19	P	129360	255		WASHER, Spring	1			
20	P	129360	258		BOLT, Shoulder, #8-32 x 1	4			
21	P	129360	353		SPRING, Compression	1			
22	P	27184	045		NUT, Hug Lock, 5/16	2			
23	P	19679	091		LOCKWASHER, 5/16 x .062 Thick	2			
24	P	83755	001		BOLT, Shoulder, 5/16-18 x 3/4	4			
25	P	129360	350		SCREW, Flat Head Hex, #8-32 x 7/8	2			
26	P	150055	001		SCREW, Truss Head, 1/4-20 x 7/8	4			
27	P	150823	001		SCREW, Flat Head Hex, 1/4-20 x 5/8	4			
28	P	129360	328		INSERT, Screw Lock	4			
29	P	129357	090		INSERT, Top	2			
30	P	10456	091		WASHER, Flat, 11/16 OD x .390 ID	A/R			
31	P	129360	256		WASHER, Thrust	1			
32	P	36565	061		PIN, Roll, 1/8 x 1	3			
33	P	36883	061		SCREW, Set Hex, #10-32 x 3/8	1			
34	P	42637	056		SCREW, Flat Head Socket, 5/16-18 x 1-1/2	2			
35	P	93909	371		ASSEMBLY, Side Rail, Right Hand	1			
36	P	129180	173		PIN, Roll	1			
37	P	129359	894		PAD, Adhesive	2			
38	P	9645	061		SCREW, Drive, #4 x 3/16	6			
39	P	83737	001		SCREW, Drive, #6	2			
40	P	129360	551		HOOK, Fastener, 2 x 7-3/4 (see Note)	1			
Note: Use Velcro adhesive #45 (764325-933)									

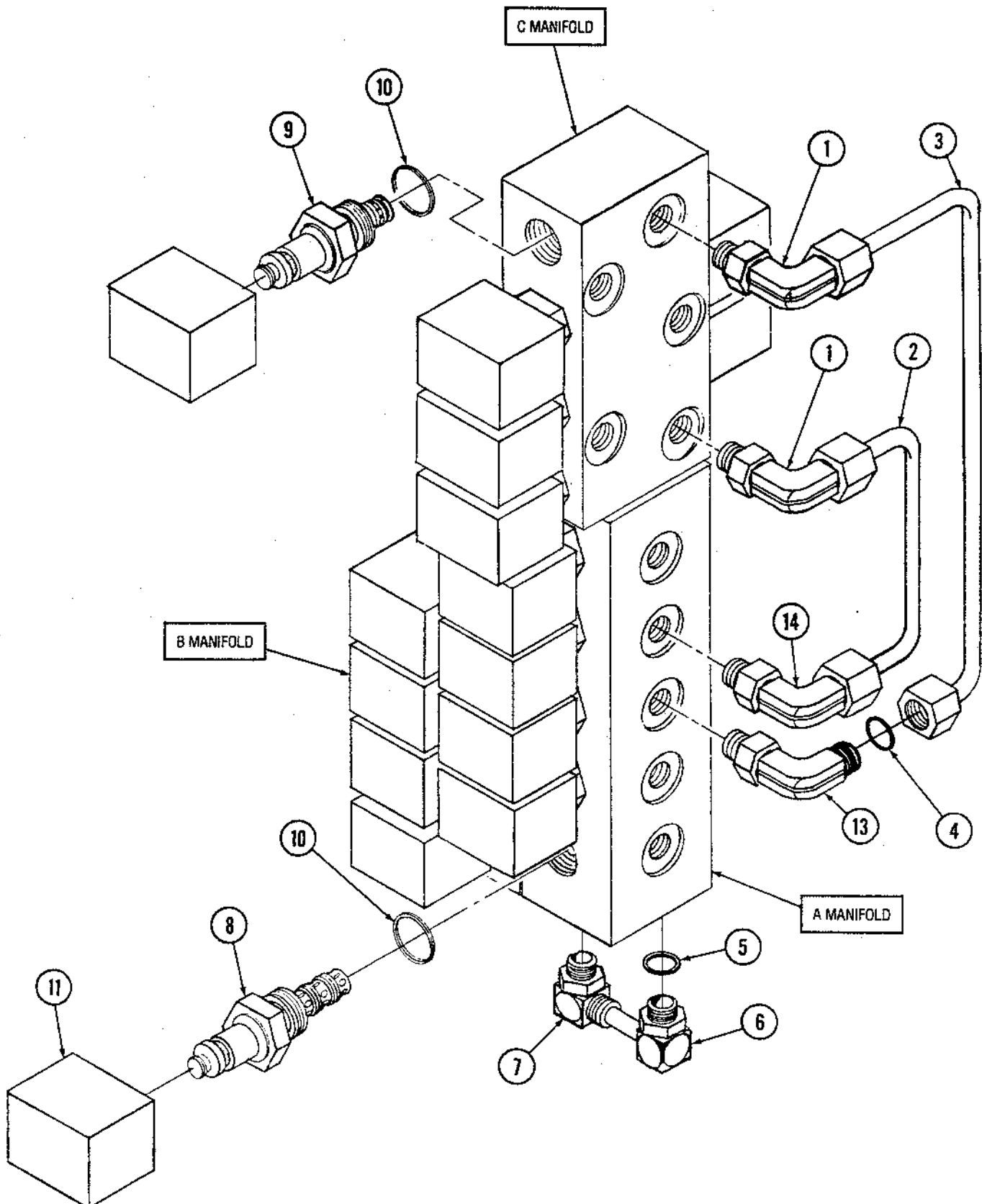
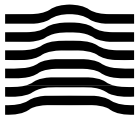


FIGURE 9-21. Valve Assembly

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
9-21-	P	146653	778		VALVE ASSEMBLY - RC	X			
	P	146655	483		VALVE ASSEMBLY - RL		X		
	1 P	129359	658		FITTING, Elbow, SAE 4/FF S4	2	2		
	2 P	93909	310		ASSEMBLY, Tube	1	1		
	3 P	93909	312		ASSEMBLY, Tube	1	1		
	4 P	129359	667		O-Ring	4	4		
	5 P	129360	338		O-Ring	2	2		
	6 P	129360	366		FITTING, Hydraulic, SAE 4	2	2		
	7 P	129359	673		FITTING, Hydraulic, SAE 4/LENZ 4, Elbow	2	2		
	8 P	129359	660	*	VALVE, Cartridge, 3-way	9	9		
	9 P	129359	837	*	VALVE, Cartridge, 2-way	6	6		
	10 P	764323	054		O-RING	15	15		
	11 P	129359	670		COIL	15	15		
	12 P	129360	337		FITTING, Hydraulic Plug SAE 4 (not shown)	2	2		
	13 P	134469	118		VALVE, Flow Control	1	1		
	14 P	134469	117		VALVE, Flow Control	1	1		
<p><i>*Note: Item 8 is used on "A" and "B" manifolds only. Item 9 is used on "C" manifold only.</i></p>									

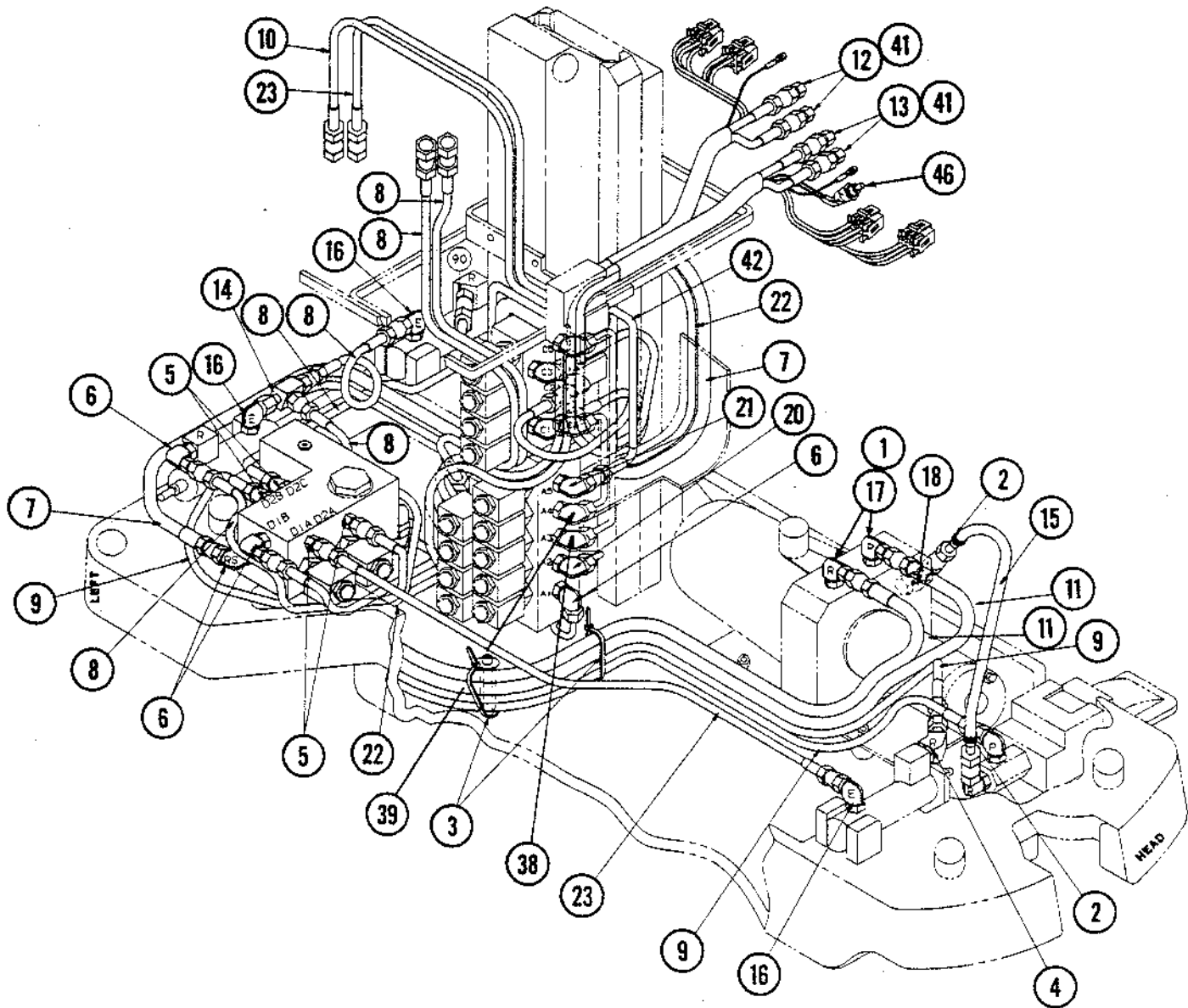


FIGURE 9-22a. Table Base and Column: Hydraulic Assembly (Part 1 of 3)

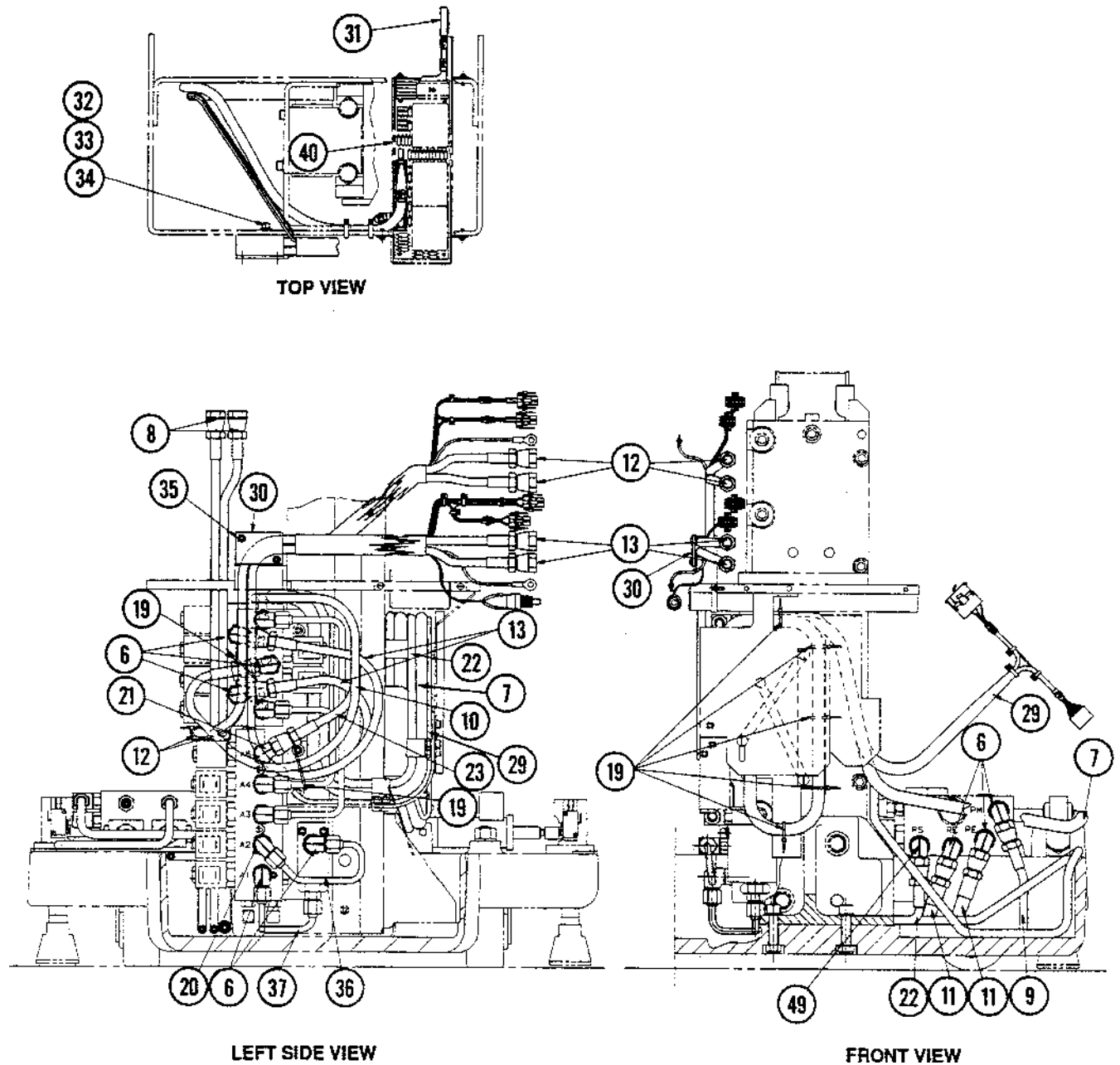


FIGURE 9-22b. Table Base and Column: Hydraulic Assembly (Part 2 of 3)

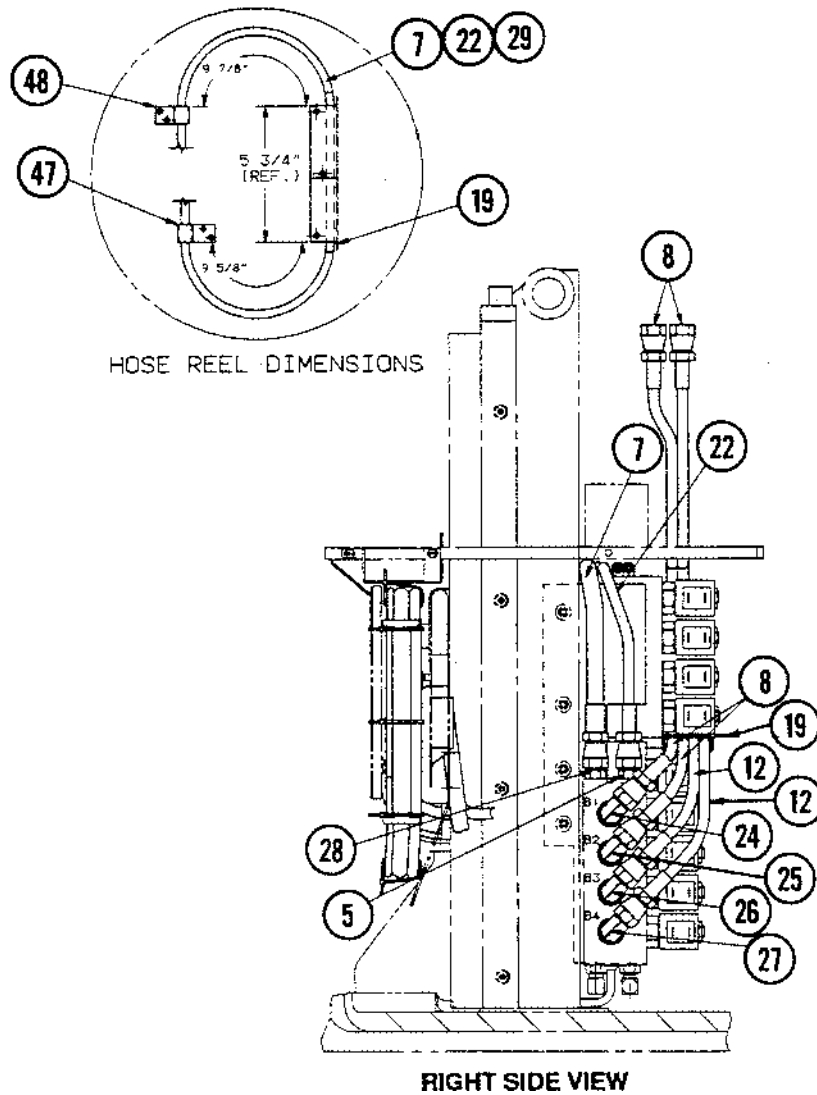


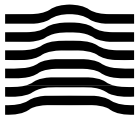
FIGURE 9-22c. Table Base and Column: Hydraulic Assembly (Part 3 of 3)

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
9-22-					TABLE BASE & COLUMN HYDRAULIC ASSEMBLY - RC	X			
					TABLE BASE & COLUMN HYDRAULIC ASSEMBLY - RL		X		
1	P	129360	578		WASHER	2	2		
2	P	129360	600		CLAMP, Hose	2	2		
3	P	93909	461		WIRE TIE, #10	3	3		
4	P	129360	158		FITTING, Hydraulic, 45° Elbow	1	1		
5	P	129359	656		FITTING, Hydraulic, Straight	8	8		
6	P	129359	658		FITTING, Hydraulic, 90° Elbow	10	10		
7	P	93908	608		ASSEMBLY, Hose	1	1		
8	P	93908	609		ASSEMBLY, Hose	6	6		
9	P	93908	611		ASSEMBLY, Hose	2	2		
10	P	93908	612		ASSEMBLY, Hose	1	1		
11	P	93908	615		ASSEMBLY, Hose	2			
	P	93908	610		ASSEMBLY, Hose, 39-1/8"		2		
12	P	146653	927		CABLE ASSEMBLY, Leg Section	1			
	P	146655	452		CABLE ASSEMBLY, Leg Section		1		
13	P	146653	928		CABLE ASSEMBLY, Back Section	1			
	P	146655	453		CABLE ASSEMBLY, Back Section		1		
14	P	129360	340		FITTING, Hydraulic Tee	1	1		
15					TUBING	A/R	A/R		
16	P	136807	756		VALVE, Restrictor	3			
	P	136807	746		VALVE, Restrictor		3		
17	P	93909	524		FITTING, Hydraulic (Metric)	2	2		
	P	764323	057		• O-RING	2	2		
18	P	129360	341		FITTING, Suction	1	1		
19	P	431172	091		CABLE TIE	8	8		
20	P	93909	788		VALVE, Flow Control	1			
	P	136807	747		VALVE, Flow Control		1		
21		*			VALVE, Flow Control	1			
	P	136807	773		VALVE, Flow Control		1		
22	P	93908	618		ASSEMBLY, Hose	1	1		
23	P	93908	617		ASSEMBLY, Hose	2	2		
24		*			VALVE, Flow Control	1			
	P	134469	114		VALVE, Flow Control		1		
25		*			VALVE, Flow Control	1			
	P	134469	115		VALVE, Flow Control		1		
26		*			VALVE, Bi-Flow Restrictor	1			
	P	134469	116		VALVE, Bi-Flow Restrictor		1		
27		*			VALVE, Flow Control	1			
	P	134469	117		VALVE, Flow Control		1		
28		93909	512		VALVE, Check	1	1		
29	P	146653	794		ASSEMBLY, Cable, P1 to P5 and P22	1	1		
30	P	56397	192		COVER, Hose Guide	1			
31	P	136807	031		ASSEMBLY, Cable, P9 to P10 (Override)	1	1		
32	P	19677	041		LOCKWASHER, #10	12	12		
33	P	17589	045		WASHER, Flat, #10	8	8		
34	P	37891	041		SCREW, Sockethead Cap, #10-24 x 5/8 Long	2	2		
35	P	45323	042		SCREW, Machine, Button Head, #8-32 x 3/8" Long	2	2		
36	P	93909	419		ASSEMBLY, Tube	1	1		
37	P	93909	421		ASSEMBLY, Tube	1	1		

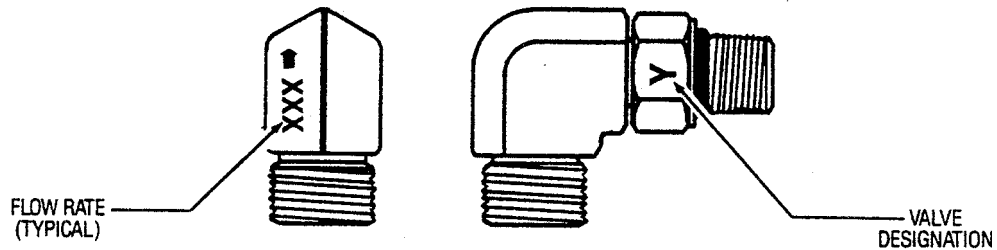


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FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
38		*			VALVE, Flow Control	1	1		
39		*			VALVE, Flow Control	1	1		
40	P	136807	085		ASSEMBLY, Override Control Board Box	1	1		
41	P	129359	667		O-RING	16	16		
42	P	93908	617		ASSEMBLY, Hose, 26-1/2" Long	1	1		
43	P	93908	616		ASSEMBLY, Hose 14-3/4" Loing (not shown)	1	1		
44	P	93908	614		ASSEMBLY, Hose 14" Long (not shown)	2	2		
45	P	84104	001		TIE, Cable	3	3		
46	P	129360	679		EXTENSION, Push Button Switch	A/R	A/R		
47	P	129360	268		CLAMP, Hose	1	1		
48	P	129360	267		CLAMP, Hose	2	2		
49	P	93909	513		VALVE, Check	1	1		



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**FIGURE 9-23. Valve-in-Fitting**

VALVE-IN-FITTING MATRIX			
Valve Reference			
Manifold Location #	Standard Part No.	Flow Rate (Typical)	Table Section Articulated
B1	•134469-114	.055	RIGHT TILT
B2	•134469-115	.102	LEFT TILT
B3	•134469-116	160/162	LEG UP
B4	•134469-117	.059	LEG DOWN
A2	•136807-747		HEIGHT/LOWER
A3	•134469-118	.215	BACK/SEAT
A4	•134469-117	.108	BACK/SEAT
A5	•134469-116	.180	SEAT
Mounted on Floor Lock Cylinder	•136807-746		FLOOR LOCKS

NOTE: The articulation speeds are controlled by changing the hydraulic flow rates to the cylinder.

Each valve is attached to a particular solenoid manifold port as referenced by a designation stamped on the blue manifold body.

Use the above Valve-in-Fitting Matrix to determine the part number of the valve needed .



QUANTUM 3080 - 04 Tables

Surgical Table

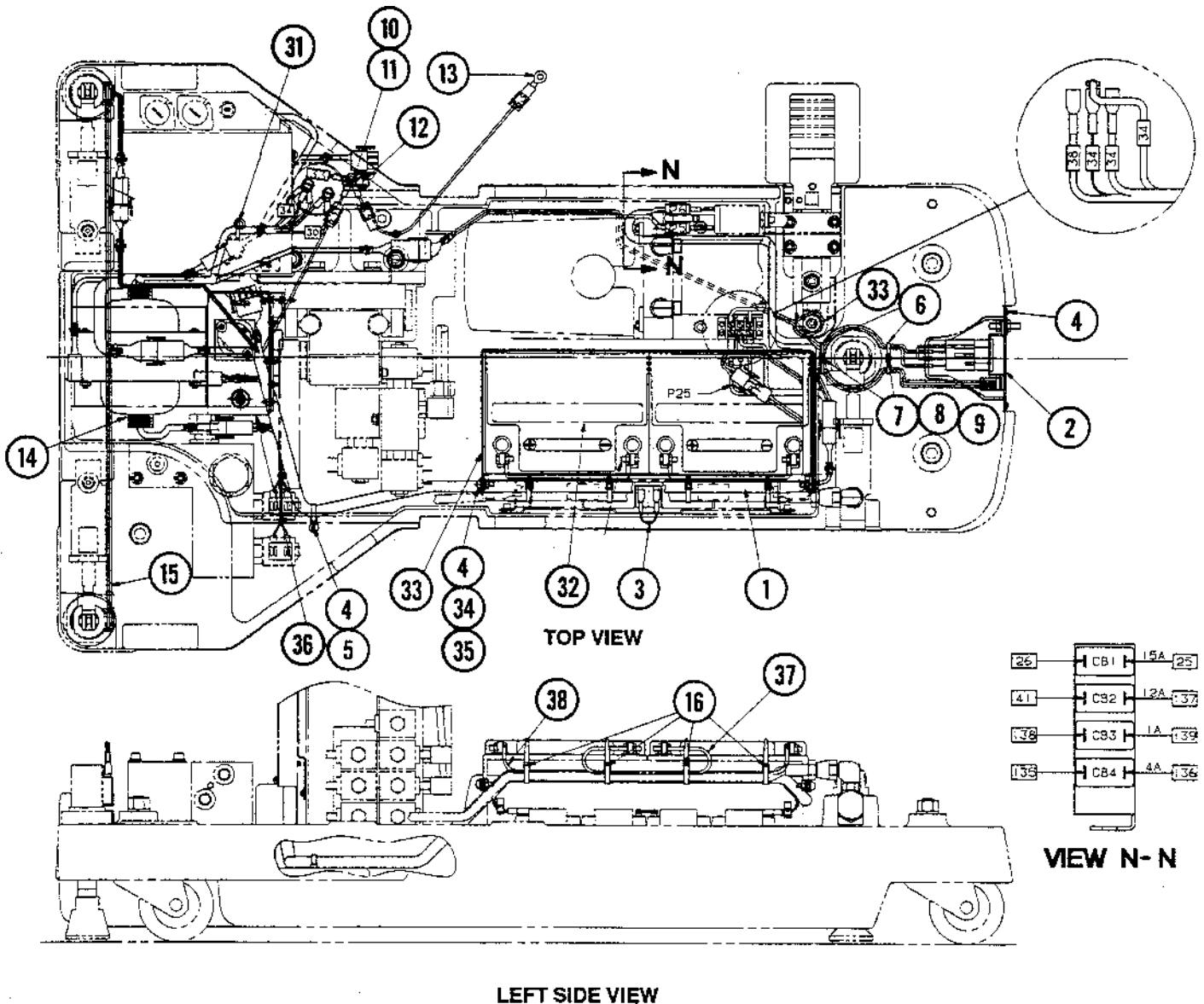


FIGURE 9-24a. Table Base and Column: Electrical Assembly (Part 1 of 3)

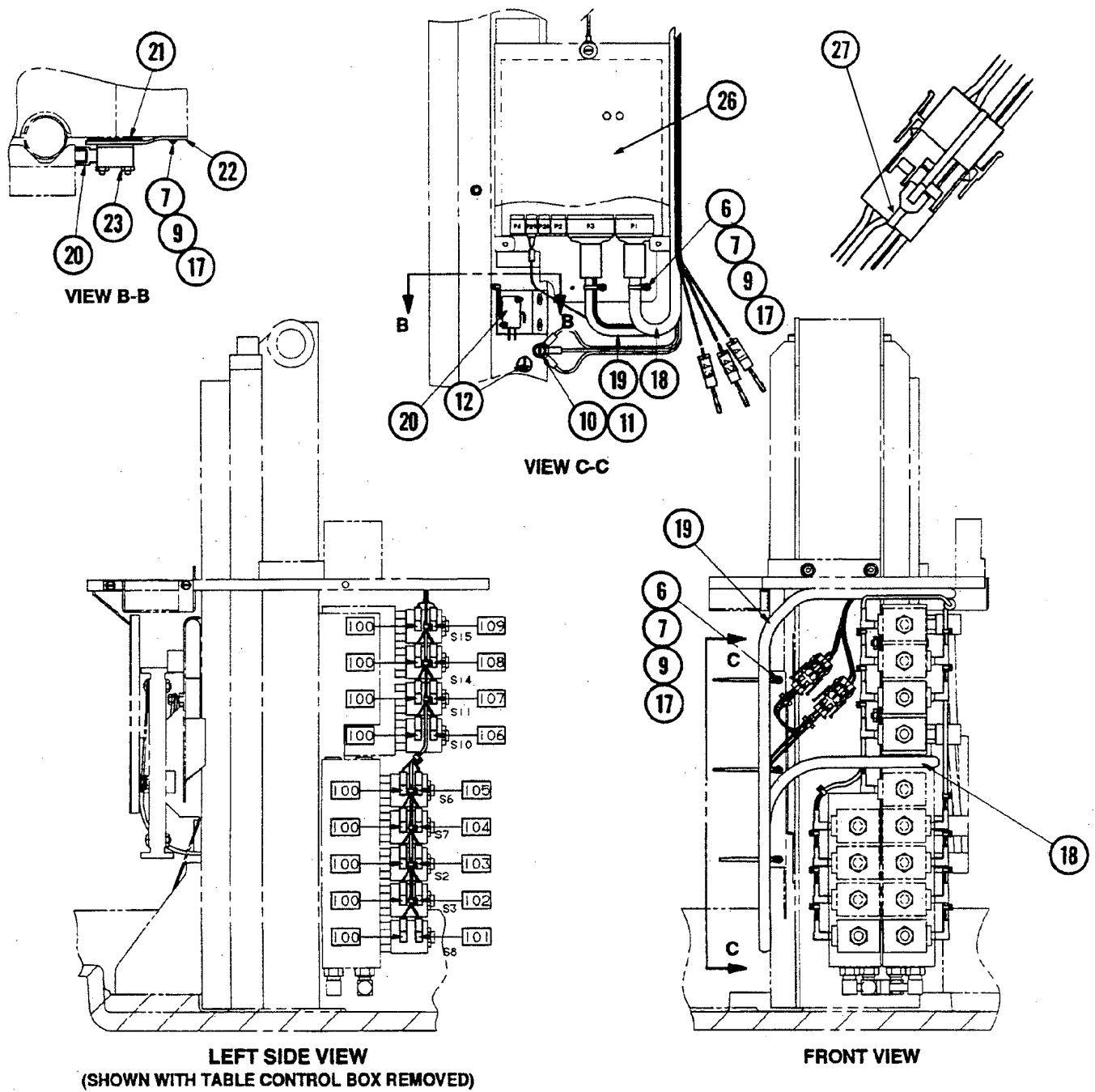


FIGURE 9-24b. Table Base and Column: Electrical Assembly (Part 2 of 3)

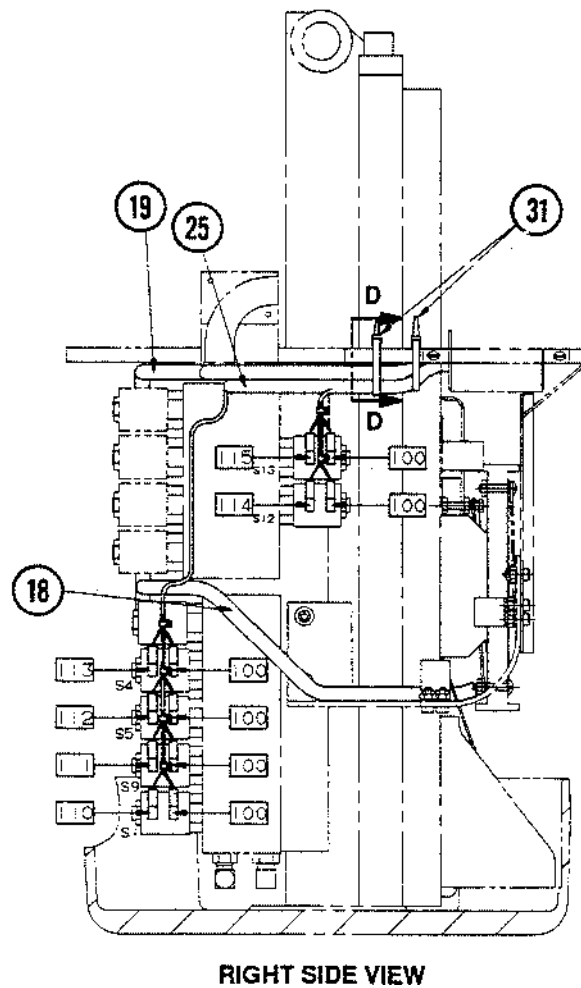
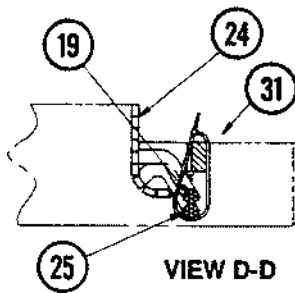


FIGURE 9-24c. Table Base and Column: Electrical Assembly (Part 3of 3)

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
9-24-					TABLE BASE & COLUMN ELECTRICAL ASSEMBLY - RC	X			
					TABLE BASE & COLUMN ELECTRICAL ASSEMBLY - RL		X		
	1	P	146653	798	ASSEMBLY, Cable, Table Base	1	1		
	2	P	134469	091	ASSEMBLY, AC Plate, Power Supply (see Figure 9-6)	1	1		
	3	P	93909	468	JUMPER, Battery	1	1		
	4	P	93908	037	SCREW, Sems Machine, #8-32 x 1/2 Long	5	5		
	5	P	93909	461	WIRE TIE, #10	3	3		
	6	P	93909	462	WIRE TIE, #4	12	12		
	7	P	30743	045	LOCKWASHER, #4 External Tooth	10	10		
	8	P	84118	004	SCREW, Roundhead, #4-40 x 1/2 Long	2			
		P	90712	041	SCREW, Roundhead, #4-40 x 5/8 Long		2		
	9	P	84114	001	WASHER, Flat, #4	10	10		
	10	P	82675	001	SCREW, Hexhead Slotted, #10-32 x 3/8 (Green, Ground)	3	3		
	11	P	124361	013	LOCKWASHER, #10 External Tooth	3	3		
	12	P	129360	483	STICKER, Natural Ground	3	3		
	13	P	93909	525	STRAP, Ground Assembly	1	1		
	14	P	136807	033	ASSEMBLY, Wiring, Transformer, 24V	1	1		
	15	P	136807	035	ASSEMBLY, Wiring, Limit Switch (Floor Lock)	1	1		
		P	93909	544	• SWITCH, Limit	2	2		
		P	84118	004	• SCREW, Panhead Machine	4	4		
	16	P	129360	598	CABLE TIE, Barbed	4	4		
	17	P	13334	045	SCREW, Machine Roundhead, #4-40 x 3/8 Long	8	8		
	18	P	146653	794	ASSEMBLY, Cable, P1 to P5 and P22	1	1		
	19	P	146653	792	ASSEMBLY, Cable, P3 to P8	1			
		P	146655	451	ASSEMBLY, Cable, P3 to P8		1		
	20	P	93909	702	SWITCH, Roller Arm	1	1		
	21	P	93909	549	ASSEMBLY, Switch Plate Stud	1	1		
	22	P	93909	548	PLATE, Switch, Offset	1	1		
	23	P	10370	045	NUT, Hex Machine, #2-56	2	2		
	24				GROMMET, Continuous	A/R	A/R		
	25	P	146653	776	ASSEMBLY, Cable, Solenoid (P7 to Coils)	1	1		
	26	P	146655	481	ASSEMBLY, Control Board Housing Box	1	1		
	27	P	77299	091	WIRE TIE	20	20		
	28	P	93908	832	HOUSING, contact (P4, 8 Position) (not shown)	1	1		
	29	P	129360	572	BEAD, Shield (not shown)	1	1		
	30	P	84104	001	TIE, Wire (not shown)	5	5		
	31	P	431172	091	CABLE, Tie	14	14		
	32	P	136806	806	BATTERY, 12V	2	2		
	33	P	93909	212	BRACKET, Battery Support (Coated)	1	1		
	34	P	3153	041	NUT, Hex #8-32	2	2		
	35	P	84114	003	WASHER, Flat #8	6	6		
	36	P	146653	939	CHARGER, Battery	1	1		
	37	P	93909	467	JUMPER, Motor-Battery	1	1		
	38	P	136807	036	ASSEMBLY, Cable P25 to Battery	1	1		

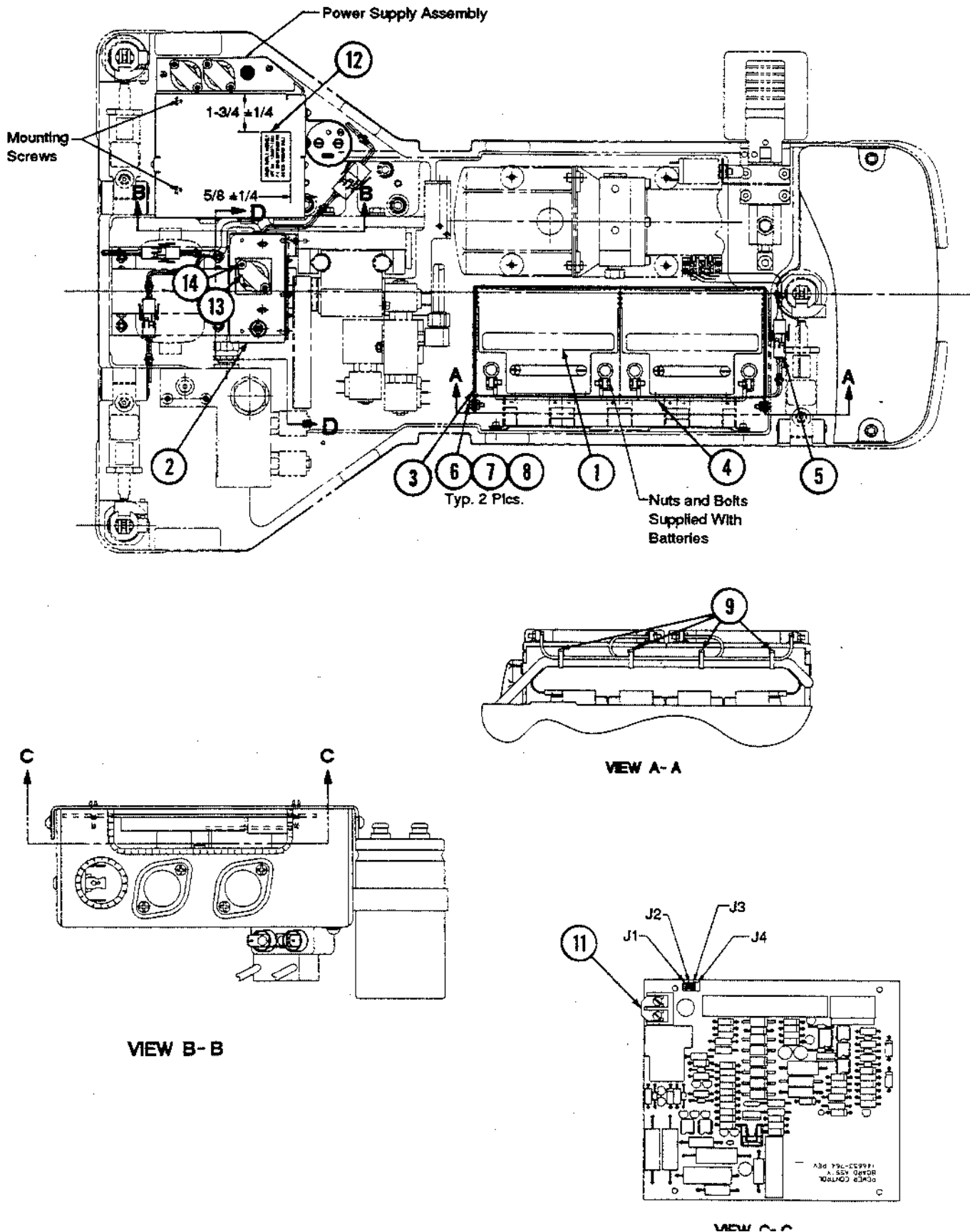


FIGURE 9-25. Electric-to-Battery Conversion

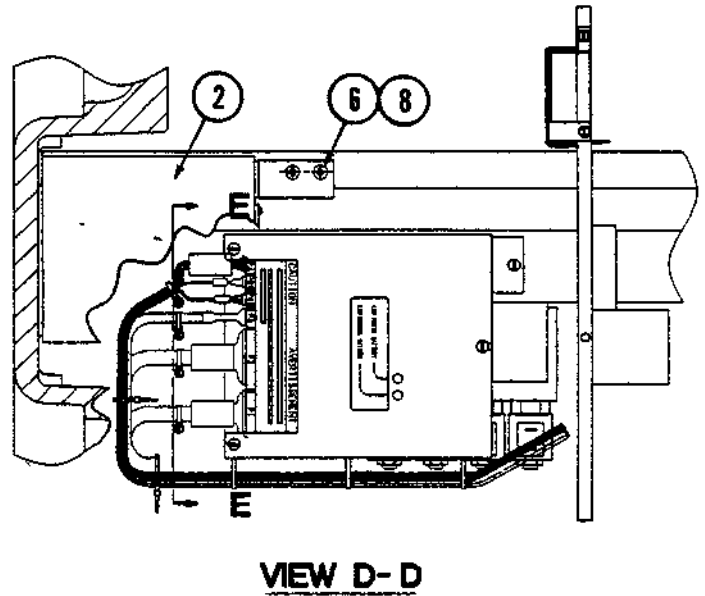
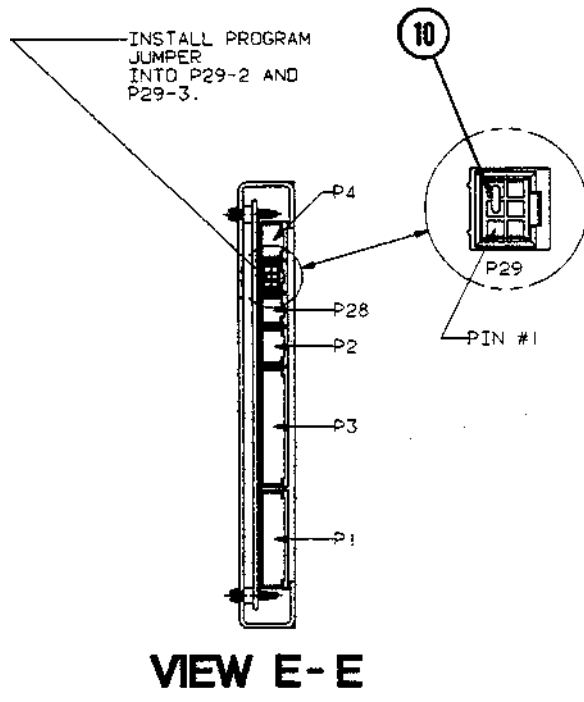


FIG. & INDEX NO.	PART NUMBER	SVC	DESCRIPTION	UNITS PER ASSEMBLY
9-25-	630939	039	ELECTRIC-TO-BATTERY CONVERSION	X
1	P 136806	806	BATTERY, 12 Volt	2
2	P 146653	939	ASSEMBLY, Battery Charger	1
3	P 93909	212	BRACKET, Battery Support (Coated)	1
4	P 93909	467	WIRE, Jumper, Motor Battery	1
5	P 136807	036	ASSEMBLY, Cable, P25 to Battery	1
6	P 93908	037	SCREW, Sems, #8-32 x 1/2 Long	4
7	P 3153	041	NUT, Hex, #8-32	2
8	P 84114	003	WASHER, Flat, #8	6
9	P 129360	598	CABLE TIE	4
10	P 93909	748	WIRE, Jumper, Program	1
11	P 129360	518	JUMPER	1
12	P 93909	750	LABEL, Battery Identification	1
13	P 129360	653	COVER, Protective	1
14	P 129360	652	SCREW, Tamper Resistant	2

3080 BIERI HYDRAULIC VS. STANDARD 3080 TABLES**External Visual Difference To The Customer:**

None

External Visual Differences To The STERIS Technician:

Bieri serial number begins: B4

Bruning serial number begins: 04

Operational Differences:

The floor lock sequence is longer.

Electrical System Differences:

Bieri uses 13 solenoid valves vs. 17 for a Bruning table

New design override board

Different jumper settings on table control board

Wiring harness - P9-P10 / P7 to Coils

Hydraulic System Differences:

Cylinders

Manifold systems

Pump and Motor assembly

Hoses and Fittings

Check valves and restrictors

Component Repair and Replacement

Check valves vs. entire cylinders

Hydraulic pressure adjustment

Supplementary tool requirements (metric)



PRINCIPLES OF "BHYD" OPERATION

(Refer to schematics at end of this section for graphic information on hydraulic operation.)

"BHYD" = Bieri Hydraulic System

There are ten hydraulic cylinders in the BHYD system which allow for multiple articulations of the table. Left and right tilt require one cylinder. Leg up and down requires two cylinders. Column raise and lower requires one cylinder. Back raise and lower requires two cylinders. To obtain the level compensating the floor locks require three hydraulic cylinders. Articulations such as flex and trendelenburg require the use of multiple cylinders, therefore requiring a series of directional and flow control valves.

The leg and seat cylinders are protected by the use of internal flow fuse valves. If a hydraulic line failure occurs, the flow fuse valve inside the cylinder will act as a check valve and prevent sudden falling of the table section.

The BHYD system incorporates seven Lowering Brake check valves that act as fluid pilots for lowering and ports of restriction when actuated. Five three-position directional valves are used to select the particular articulation. Four two-position directional valves are used to control fluid flow for articulations involving the back seat section cylinders. One start stop valve is used to control all articulations.

The BHYD 3080 Table is powered by an electro-hydraulic system utilizing a special, high-efficiency gear pump that is driven by a 24 VDC motor. The pump is rated at .25 gallons per minute and has a 1820 psi capacity. The system pressure-control

valve reduces the operating pressure to 1750 psi (+50 psi, -25 psi). There is a manual foot pump for table operation in the event of power loss to the 24 VDC motor.

The hydraulic fluid used in the 3080 BHYD system is filtered by two 10 micron filters at the output of the electric and manual pumps.

The BHYD system utilizes a special purpose valve, START/STOP VALVE, S-13. Its function is to release system pressure when not in use, giving smooth start and stop operation. The S-13 valve is de-energized and the hydraulic fluid is diverted back to the reservoir.

NOTE: All articulations require either the Hydraulic Pump and Motor to be running and producing necessary pressure or the use of the manual foot pump.

Electrical operation of the hydraulic system varies between hand con-

DESCRIPTION OF ARTICULATION/ OPERATION

trol and auxiliary control operation.

10.1 SIDE TILT

See Figure 10-1

The side tilt articulations involve the use of one mechanically-locking hydraulic cylinder, two lowering brake check valves, one three-position directional valve (S-1 and S-2) and one start/stop valve (S-13).

Left side tilt is accomplished when solenoids S-1 and S-13 are energized. Fluid is directed through the S-1 valve to the lowering brake check valve. At this point fluid is sent in two directions. One direction allows for fluid to pass through a check valve and straight to the cylinder. The second direction is diverted off to act as a pilot for the return line restrictor. Fluid from the cylinder is now allowed to flow through the return line check valve, the restriction orifice and S-1 back to the reservoir.

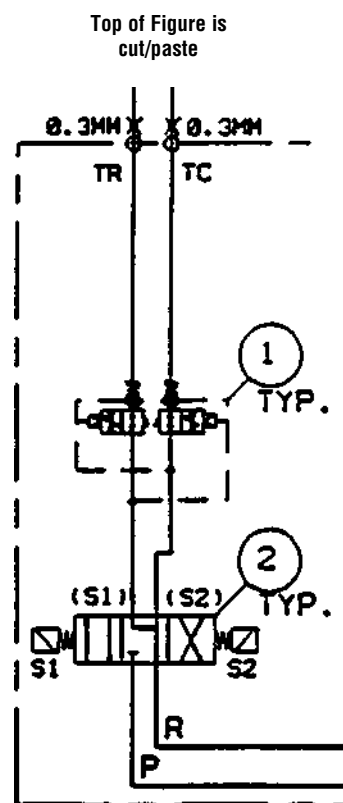


Figure 10-1. Side Tilt

Right-side tilt is accomplished in the same manner as the left side (outlined above), but uses solenoids S-2 and S-13 instead.

10.2 COLUMN RAISE/LOWER VALVE

See Figure 10-2

Raising and lowering of the tabletop involves the use of one cylinder, one three-position directional valve (S-5 and S-6), one lowering brake check valve and one start/stop valve (S-13). A variable orifice restrictor is added to the system at the inlet/outlet of the raise/lower cylinder. This device is used to assist speed control and to compensate for varying tabletop loads.

The tabletop is raised when S-5 and S-13 are energized. Fluid is directed to the lowering brake check valve where it passes through the valve and through the variable orifice restrictor to the lift cylinder and causes the tabletop to rise.

The tabletop is lowered when S-6 and S-13 are energized. Fluid is directed to the lowering brake check valve to actuate the return line restrictor, to control the lowering speed, and unseats the pilot check valve. Fluid from the cylinder passes through the variable orifice, back to S-6 and on to the return port of the reservoir.

10.3 LEG UP AND DOWN

See Figure 10-3

The leg up and down articulations require the use of two hydraulic cylinders, two lowering brake check valves, one three-position directional valve (S-3 and S4) and one start/stop valve (S-13).

Leg up is accomplished when solenoids S-3 and S-13 are energized. Fluid is directed through the S-3 valve to the lowering brake check valve. At this point fluid is directed two directions. In one direction the fluid flows to the return line restrictor and actuates it to

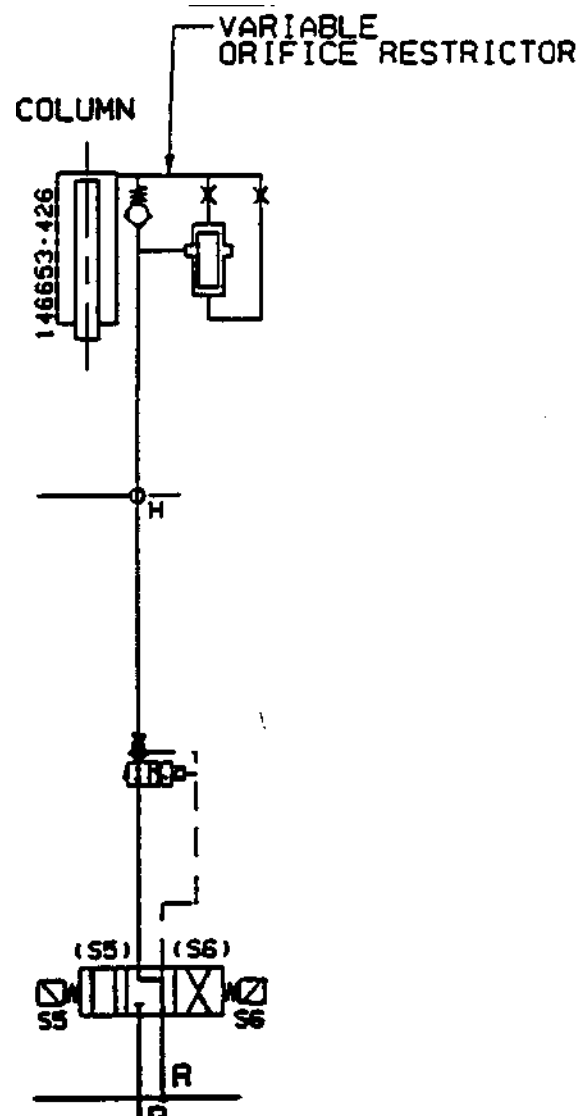


Figure 10-2. Column Raise/Lower



control the speed of the articulation. The second fluid direction unseats the holding check valve and allows fluid to flow to both of the cylinders. Return fluid from the cylinders comes back to the lowering brake valve and passes through the now activated restrictor port to the S-3 valve and back to the reservoir.

Leg down is accomplished when solenoids S-4 and S-13 are energized. Fluid is directed through the S-4 valve to the lowering brake check valve. Fluid is then directed in two directions. In one direction the fluid actuates the return line restrictor to control the articulation speed, and unseats the holding check valve. The second direction allows fluid to pass through an unrestricted port and on to the cylinders causing them to retract. The return fluid from the cylinders is directed back to the lowering brake check valve. The fluid passes the unseated check valve to the S-4 valve and back to the reservoir.

10.4 FLEX/REFLEX

See Figure 10-4

Flexing and Reflexing the tabletop requires the use of one three-position directional valve (S-7 and S-8), two lowering brake check valves, two position directional valves (S-9S and S-10S), one start/stop valve (S-13), two back cylinders and one seat cylinder.

The Flex articulation is accomplished by energizing the S-8 solenoid valve, allowing fluid to flow through the three-position directional valve. The fluid then flows to one lowering brake check valve and passes through its pilot check then on to the back cylinder two-position directional valve (S-10S).

NOTE: S-9 and S-10 solenoids are not energized during this articulation.

Fluid passes through the two-position directional (S-10S) valve and branches to the retract side of the back cylinders and also to the second lowering brake check valve where it's

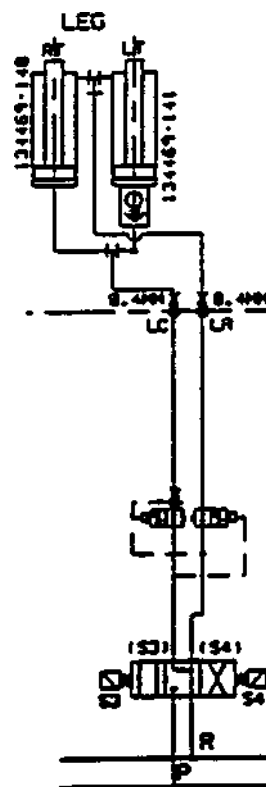


Figure 10-3. Leg Up and Down

pilot check is unseated and return line restrictor is actuated. Fluid leaving the back section cylinders passes through the two-position directional valve (S-10S) to the retract side of the seat cylinder. Having piloted the check valve, the fluid in the seat section is allowed to flow through the two-position directional valve (S-9S), the lowering brake check valve, the S-8 valve and back to the reservoir.

The Reflex articulation is accomplished by energizing the S-7 and S-13 solenoid valves allowing fluid flow through the three-position directional valve. The fluid then flows to one lowering brake check valve and passes through it's pilot check and on to the seat cylinder two-position directional valve (S-9S) and to the extend side of the seat cylinder.

NOTE: S-9 and S-10 solenoids are not energized during this articulation.

Fluid from the seat cylinder is directed to the second two-position directional valve (S-10S) where it passes through it to the back cylinder extended ports. Fluid exiting the back section branches. One branch goes to the second lowering brake valve to pilot the check and to actuate the return line restrictor. The second branch of fluid exiting the back section cylinders passes through the two-position directional valve (S-10S), through the now piloted lowering brake check valve, through the S-7 valve and back to the reservoir.

10.5 TRENDELENBURG/ REVERSE TRENDELENBURG

See Figure 10-5

These articulations require the use of one three-position directional valve (S-7 and S-8), three two-position directional valves (S-9S and S-10S), (one electrical S-10), two lowering brake check valves, one start/stop valve (S-13), two back cylinders and the seat cylinder.

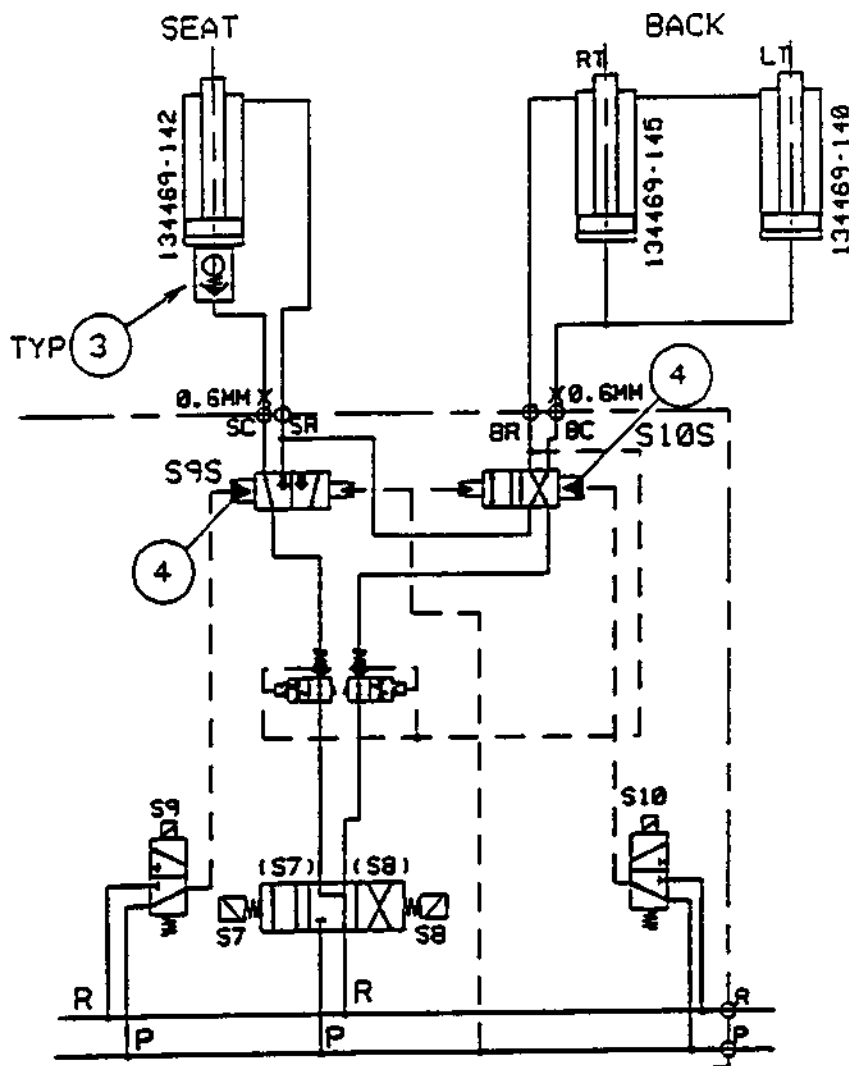


Figure 10-4. Flex/Reflex



The Trendelenburg articulation is accomplished by energizing the S-7, S-10, and S-13 solenoid valves.

NOTE: Energizing the S-10 solenoid allows fluid to bleed off the S-10S two-position directional valve causing it to actuate.

Fluid flows through the S-7 valve to the first lowering brake check valve. The fluid unseats the check and continues to flow to the two-position directional valve (S-9S), passing through it to the seat cylinder. Fluid leaving the seat cylinder is directed to the second two-position directional valve (S-10S) which is now in its actuated position state due to the energizing of S-10. Fluid passes through the second two-position directional valve (S-10S) to the retract side of the back cylinders and also branches off to actuate the return line restrictor and pilot the check valve in the lowering brake check valve. This allows fluid exiting the back cylinders to flow through the two-position directional valve (S-10S), the piloted lowering brake check valve, the S-7 valve and back to the reservoir.

The Reverse Trendelenburg articulation is accomplished by energizing the S-8, S-10, and S-13 solenoid valves.

NOTE: Energizing the S-10 solenoid allows fluid to bleed off the S-10S two-position directional valve causing it to actuate.

Fluid flows through the S-8 valve to the first lowering brake check valve. The fluid unseats the check and continues to flow through the two-position directional valve (S-10S), which is now in its actuated position due to the energizing of S-10, to the extend side of the back cylinders. Fluid leaving the back cylinders branches to the second lowering brake check valve to pilot it and to actuate the return line restrictor. The second branch passes through the two-position directional valve (S-10S) to the retract side of the seat cylinder. Fluid leaving the seat

cylinder passes through the two-position directional valve (S-9S), through the now piloted check and restricting orifice in the lowering brake check valve, through the S-8 valve and back to the reservoir.

10.6 BACK UP/DOWN

See Figure 10-6

The Back Up and Back Down functions require the use of one three-

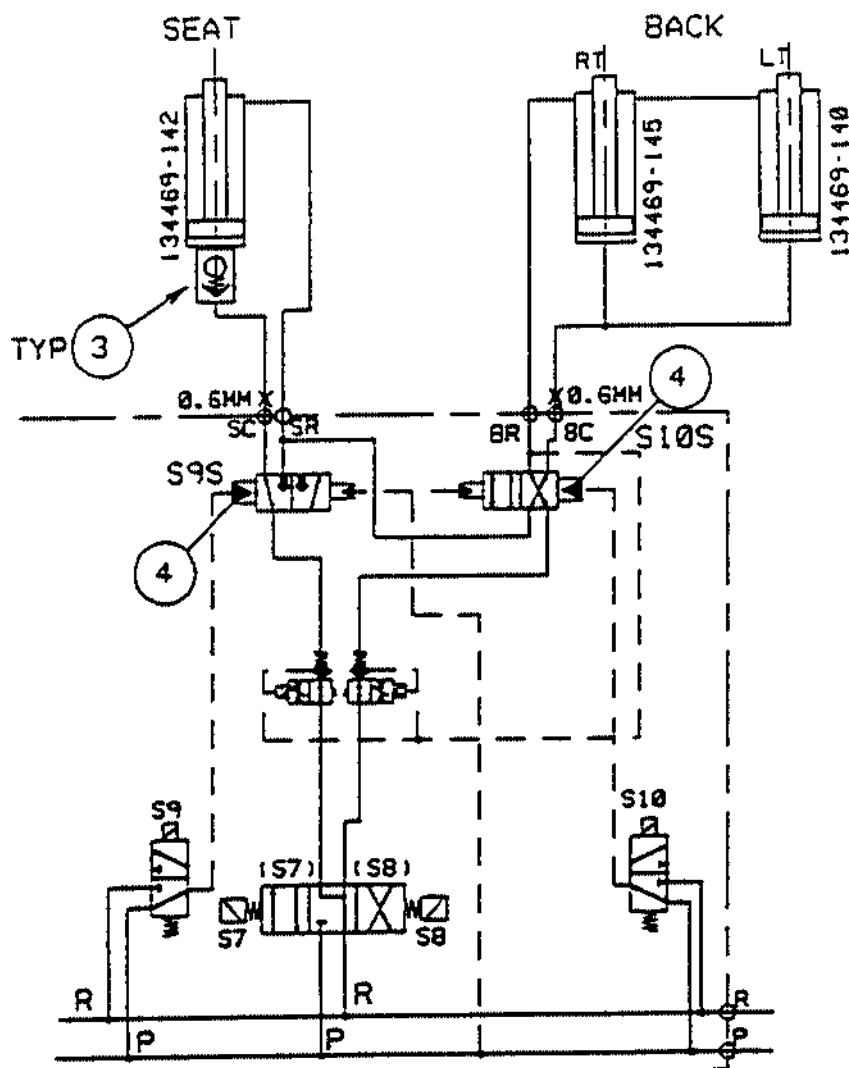


Figure 10-5. Trendelenburg/Reverse Trendelenburg

position directional valve (S-7 and S-8), three two-positioned directional valves (S-9S and S10S), (one electric, S-9), two lowering brake check valves, one start/stop valve (S-13) and two back cylinders.

The Back Up articulation is accomplished by energizing the S-7, S-9 and S-13 solenoid valves.

NOTE: Energizing the S-9 solenoid allows fluid to bleed off the S-9S two-position directional valve causing it to actuate.

Energizing the S-7 and S-13 solenoids allows fluid to flow through the check valve on the first lowering brake check valve and to the two-position directional valve (S-9S). Fluid exits this valve and passes through the second two-position directional valve (S-10S) to the back cylinder extend ports. Fluid leaving the back cylinders branches to the second lowering brake check valve to unseat its pilot check and to actuate the return line restrictor. This allows fluid flowing from the other branch to pass through the two-position directional valve (S-10S), the now piloted lowering brake check valve, through S-7 and back to the reservoir.

The back Down articulation is accomplished by energizing the S-8, S-9, and S-13 solenoids.

NOTE: Energizing the S-9 solenoid allows fluid to bleed off the S-9S two-position directional valve causing it to actuate.

Energizing the S-8 and S-13 solenoids allows fluid to flow through the check valve on the first lowering brake check valve, through the two-position directional valve (S-10S) where it branches to the retract ports on the back cylinders and to the second lowering brake check valve to pilot the check valve and to actuate the return line restrictor. Fluid leaving the Back cylinders flows through the two-position directional valve (S-10S) to the second two-position directional valve

(S9S), through it to the now piloted lowering check, through S-8 and back to the reservoir.

10.7 FLOOR LOCK: LOCK AND UNLOCK

See Figure 10-7

The floor lock operation requires

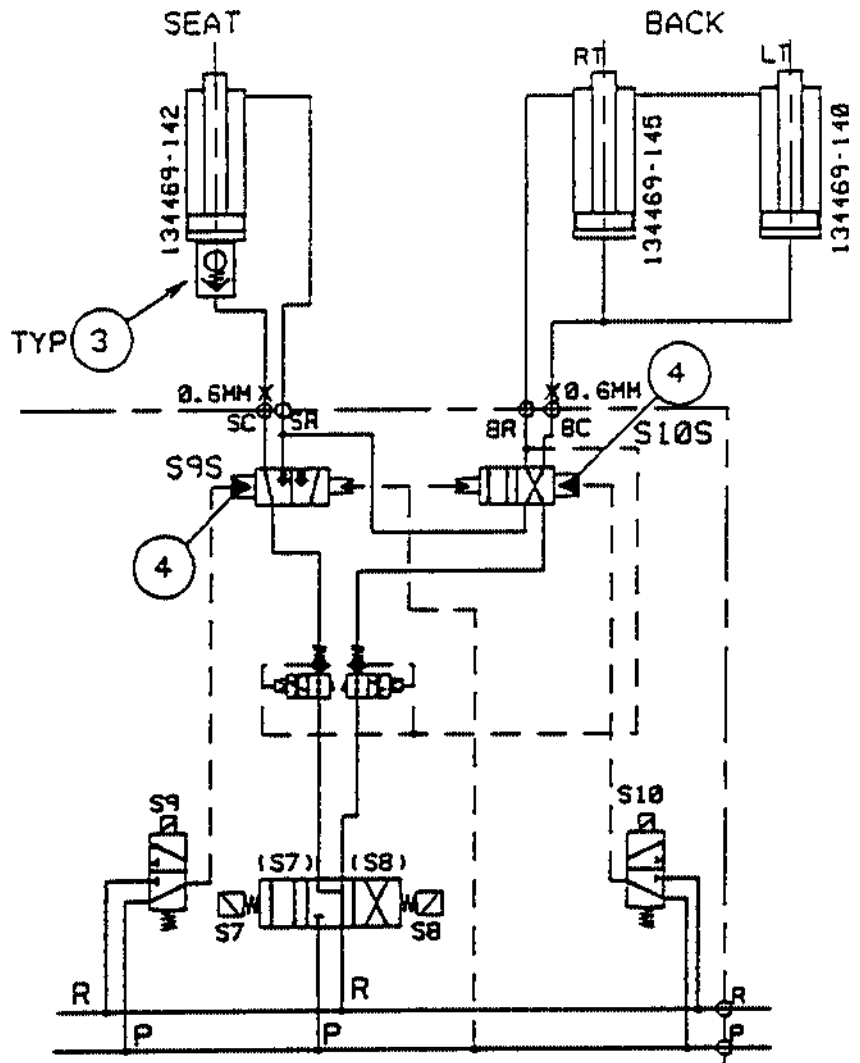


Figure 10-6. Back Up/Down



the use of one three-position directional valve (S-11 and S-12), one start/stop valve (S-13), three flow control restrictors and three floor lock cylinders. Because the floor lock system relies on a mechanical over-centering method to lock the floor locks, check valves are not required for this hydraulic circuit.

The Floor Lock function is accomplished by energizing the S-12 and S-13 solenoid valves. This allows fluid to flow through the S-12 valve to the restrictors on the extend ports of each cylinder. Fluid flow is restricted as its passed on to the cylinders, controlling the extend rate. Fluid leaving the cylinders returns back to the S-12 solenoid back to the reservoir.

The Floor Unlock function is accomplished by energizing the S-11 and S-13 solenoid valves. This allows fluid to flow through the S-11 valve to the retract ports of the floor lock cylinders. Fluid exiting the cylinders passes through the flow control restrictors back to the S-11 valve and on to the reservoir.

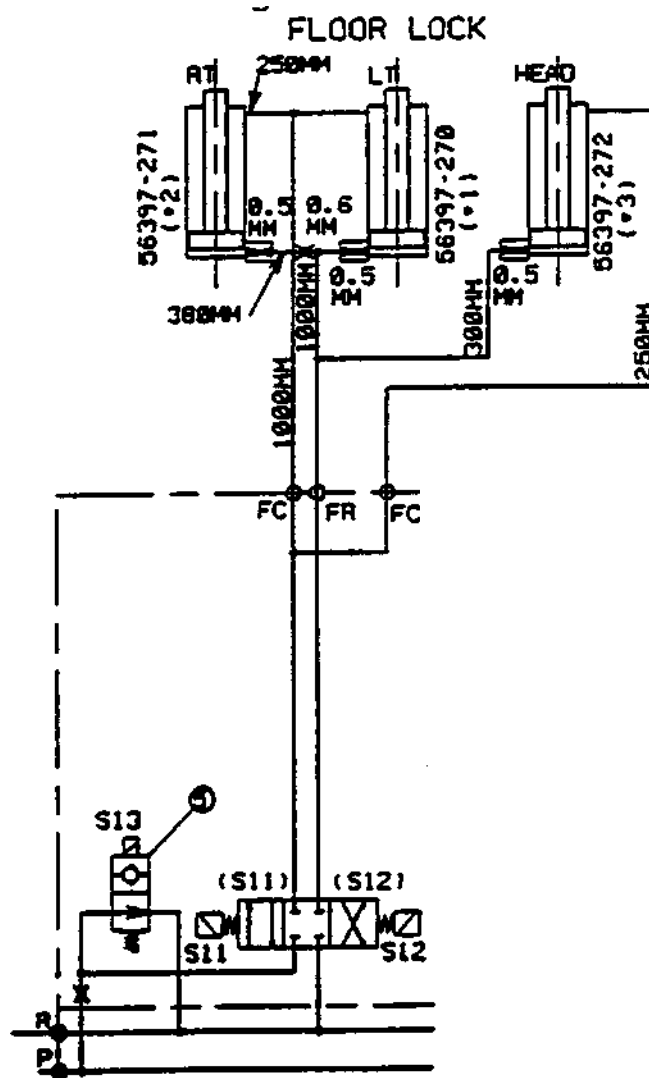


Figure 10-7. Floor Lock: Lock and Unlock

11.1 SYSTEM DESCRIPTION**CAUTION!**

Static electricity can damage microprocessor controls. Indiscriminate probing of circuits or improper connections may result in immediate or delayed electrical failure. If the electronics are to be accessed, use a personal grounding device. Exercise care in all activities involving the electronic circuitry.

The Quantum 3080RL/SP Surgical Table Control System is designed for maximum reliability and includes adequate system redundancy for almost any circumstance. The control system utilizes microprocessor technology to control the hydraulic pump and solenoid valves. The primary control system consists of a "master" and a "slave" computer. A secondary and separate override control system allows operation of basic table functions should the primary microprocessor system become inoperative.

The master computer is located on the table column, while the slave computer is located in the hand control. Communication between the two is through a coiled cord (RS232 format). The master computer selects which outputs are to be actuated based on inputs from the hand control, foot control (optional), and table sensors. An Intel 8032 microcontroller is the heart of the master computer, with software stored on a 27C256 EPROM. Solenoid outputs are generated through an 8255, buffered with open-collector drivers. A watchdog timer and appropriate software monitor input/output signals to ensure graceful (instant) recovery should the I/O ports become configured in an erroneous state. Current sensors prevent the solenoids from being turned on by improper signals. Input isolation is also provided for the seat, raise, column and floor-lock limit switches.

Input comparators indicate low-battery conditions, first through an LED on the hand control and, more specifically, on LEDs located on the table-control PC board mounted under the shroud.

The slave computer provides user inputs (from touch-pad switches) to the master computer. It also receives feedback signals and turns on the proper status LEDs. An Intel 80C31 microcontroller is the heart of the slave computer with software stored on a 27C256 EPROM. The LED buffer inputs and touch-pad matrix strobe inputs are generated through an 8255. Like the master computer, a hardware watchdog timer and software routines ensure correct I/O port status. The use of microprocessors allows for complex control functions to be implemented with minimum hardware and through the use of a small, lightweight pendant control.

Simple yet reliable backup is provided by a secondary and separate override system which allows operation of basic table functions should the primary microprocessor system become inoperative. The override control assembly uses different and basic technology. It turns off microprocessor controls when actuated by opening all driver lines and actuating the function selected at the override switch PC board. It bypasses the solenoid power cut-back circuit and turns the pump motor and solenoids fully on.

Input lines are fused and include a line filter and transient protection. Input voltage-selector switches allow the table to be operated on 100, 120, 220 or 230/240 VAC, 50/60 Hz. A battery-powered table includes a 24-VDC, 24-AH rated battery for the pump motor. An integral battery charger requires 24 hours for 90% battery charge, 36 hours for 95%, and

48 hours for 100% charge. A minimum of 36 hours is recommended.

11.2 PRINCIPLES OF OPERATION**11.2.1 Incoming Power**

A line cord, fused in the table at F1 and F2 (6 amp at 120 VDC, 4 amp at 240 VAC) feeds 120 VDC (domestic units) to the line filter. The line filter supplies line voltage to the power transformer and each of two battery chargers (one charger if a line-powered table). Each charger is fused and the rating is based on line voltage.

11.2.2 Power Control Assembly

This module is located in the table base and contains the control battery charger and the power-control PC board. This circuit board monitors and controls the following:

- Battery and battery chargers
- Actuation and protection of the hydraulic pump and solenoid
- Power-up and line-cord operation relays
- Power cut-back circuitry
- AC signal indicator for the line-cord LED on the hand control.

Jumpers on the circuit board identify whether it is battery or line-cord (electric) type.

The battery charger(s) supply 24 VDC to the control and to the motor batteries, provided the line cord is plugged in. Line-cord power is the **primary** power for battery tables. Battery voltage is monitored by the table control, through the hand control on power-up, and every 10 minutes thereafter. The table control sends a "charger off" signal to the power-control PC board to isolate the chargers and batteries, then monitors the battery voltage. If low voltage is sensed, the table control sends a low-battery signal to the low-battery LED on the hand control, as well as to the low-battery LED on the table control PC board.

Control power-up/power-down is



generated on the power-control PC board via direct signals from the hand-control ON/OFF touch pads. These signals activate a latch relay on the power-control PC board which transfers the 24 VDC signal to the table control PC board. This latch relay CR3, which is multi-poled, also isolates the batteries from the table control to conserve battery life when the unit is off, and powers the delay circuit for motor and coil enable. The latch relay can also be set (turn power off) from the override switch PC board whenever any of the manual switches is activated.

The hydraulic pump motor is activated using either the table function switches on the hand control or the function switches on the override board. In either case, a low (DC ground) signal is fed to switching transistor Q6, which provides 24 VDC to motor. The control circuitry is protected from a locked or shorted pump motor by a current-monitoring circuit which opens the pump motor line when the current exceeds 25 amps. This circuit is automatically reset when the current drain is reduced or eliminated.

The hydraulic solenoid coils are also powered from the power-control PC board. The control circuitry is protected from shorted coils/components by a current-monitoring circuit. This circuit opens the solenoid voltage line when current exceeds 2.5 amps. The circuit is automatically reset when condition is corrected. A solenoid power-cut circuit is used by the control to save battery power. When the hand control is being used, the 24 VDC solenoid voltage is cut to approximately 8 to 13 volts after the coil is energized. This current is enough to hold the hydraulic plunger open once it has been initially energized. The feature is not used when any of the override switches is activated.

The AC power indicator, located on the hand control, is sensed on the power-control PC board. When the line cord is plugged in, the battery charger energizes opto-isolator(s) that transfer a DC ground to the table control PC board for processing, which turns on the hand control LED.

A control reset signal from the table-control PC board energizes a timing circuit on the power-control PC board to delay (microseconds) the pump motor and hydraulic solenoid coil operating voltage until all I/O ports can be set. This prevents any erroneous table articulation at power-up.

11.2.3 Table Control PC Board

The table-control PC board (master computer) controls all table functions based on inputs from the hand control, foot control (optional) and table sensors. Communication with the hand control is through an RS232 format line.

The table-control PC board contains a DC-DC converter which reduces the 24 VDC from the power-control PC board to 5 VDC for use in this board and the hand control. Test points are on the board to monitor this voltage.

Battery voltages are monitored by comparators on the board. The circuit responds by indicating battery status to the hand control for display to the operator.

Floor-lock microswitch (two) signals are fed into the board, which responds by signaling the hand control to indicate floor-lock status and enabling hand-control table operation. If an unlock indication is sensed by the table-control PC board, the hand control is disabled.

Foot control signals are input directly into the board via opto-isolators. The particular table function is activated when a DC ground is applied to the appropriate pin. The table must be on and properly ori-

ented for this option to work.

The AC ON signal from the power-control PC board is processed by this board and transmitted, via RS232, to the hand control for display.

Signals from the limit switches for stopping the seat, back and raise/lower cylinders are input directly into this board via opto-isolators. These switches will stop table movement prior to reaching a mechanical stop indicated by the hand control.

The I/O drivers provide a separate ground to each hydraulic solenoid coil when a table function is activated. The positive voltage, from the power-control PC board, is already prewired to each coil. All coil activation through the hand control is through this board.

When using the hand control, the motor ON signal is generated by the I/O driver board.

A watchdog timer monitors the transmit line from the table-control PC board to the hand control. This circuit is looking for a burst of information every 100 seconds. If not sensed, the CPU will attempt to reset prior to an automatic cutoff.

Note: A jumper is used at P29 to configure for a Battery table.

11.2.4 Hand Control

The hand control houses the "slave" computer which controls all touch-pad switches (except ON and STOP/OFF) and all LED table-operation status indications.

Signals from the table function touch pads are acknowledged and transmitted, via an RS232 format line, to the table-control PC board which, in turn, activates the particular hydraulic solenoid. The LEDs next to the function touch pads indicate the operation status of the table as received from the "master" computer on the table-control PC board. The AC ON, BATTERY ON, and LOW BATTERY LED signals are generated directly from the power-control PC board.

A watchdog timer monitors the transmit line of the CPU for proper bursts of information. A CPU reset is generated if an error is detected.

The hand-control PC board is powered by +5 VDC from the DC-DC converter on the table-control PC board.

11.2.5 Override Switch Board

All signals generated by the override switches are controlled by this board, i.e., all table-positioning and floor-lock switch signals. The hand control, table-control PC board, and most circuitry on the power-control PC board are bypassed when any override switch is energized. A 24-VDC power supply, either from the batteries or from the line cord, is necessary to operate the hydraulic solenoid coils. It is not needed for the hydraulic pump since a foot operated pump backs up this device.

When an override switch is energized, four multi-poled relays (CR1, CR2, CR3 and CR4) are energized, isolating the hydraulic solenoid coils from the table-control PC board and the hand control. Simultaneously, a DC ground signal is fed to the power-control PC board to turn on the hydraulic pump if possible (see note), and to turn off power to the hand control.

NOTE: If the line cord is plugged into the table or if motor-battery power is available (battery powered tables only), the hydraulic pump will come on. Otherwise, the control batteries are used along with the manual pump. The control batteries do not have the capability to run the hydraulic pump.

lic pump.

The second pole of the override switch applies a DC ground to the proper hydraulic coil for activation. Circuitry on the board prevents more than one switch being acknowledged.

An RC (resistive-capacitive) circuit exists on the CR3 and CR4 relay coils to time-delay-off these two relay coils if an override articulation has been selected. This is necessary for proper operation of the internal valves of the hydraulic manifold.

11.3 TROUBLESHOOTING

The Troubleshooting Chart (Table 11-1) provides an easy-to-use sequence of steps that should identify and correct most electrical problems encountered. Refer to the electrical schematics in Section 11.4 when using the Troubleshooting Chart.

Refer to Section 10, Hydraulic System, when the cause of the problem appears to be hydraulic. Use Table 10-1, Hydraulic System Troubleshooting, in conjunction with Table 12-1 when applicable.

Refer to Table 11-2, Battery Diagnostics to determine proper battery voltages (battery-operated tables only).

11.3.1 Electrical

Troubleshooting Guidelines

- Prior to replacing any PC boards or other components suspected of being defective, make sure all cable plugs and fully inserted into their respective jacks.
- Make sure all cable pins are installed and locked into place on the plug(s).
- When making any DC voltage measurements, reference the DC ground, **not** the chassis ground. (These two points are isolated from each other.)
- The pump motor and/or the hydraulic solenoids can be checked by applying **24 VDC** only directly to the component.



CAUTION!



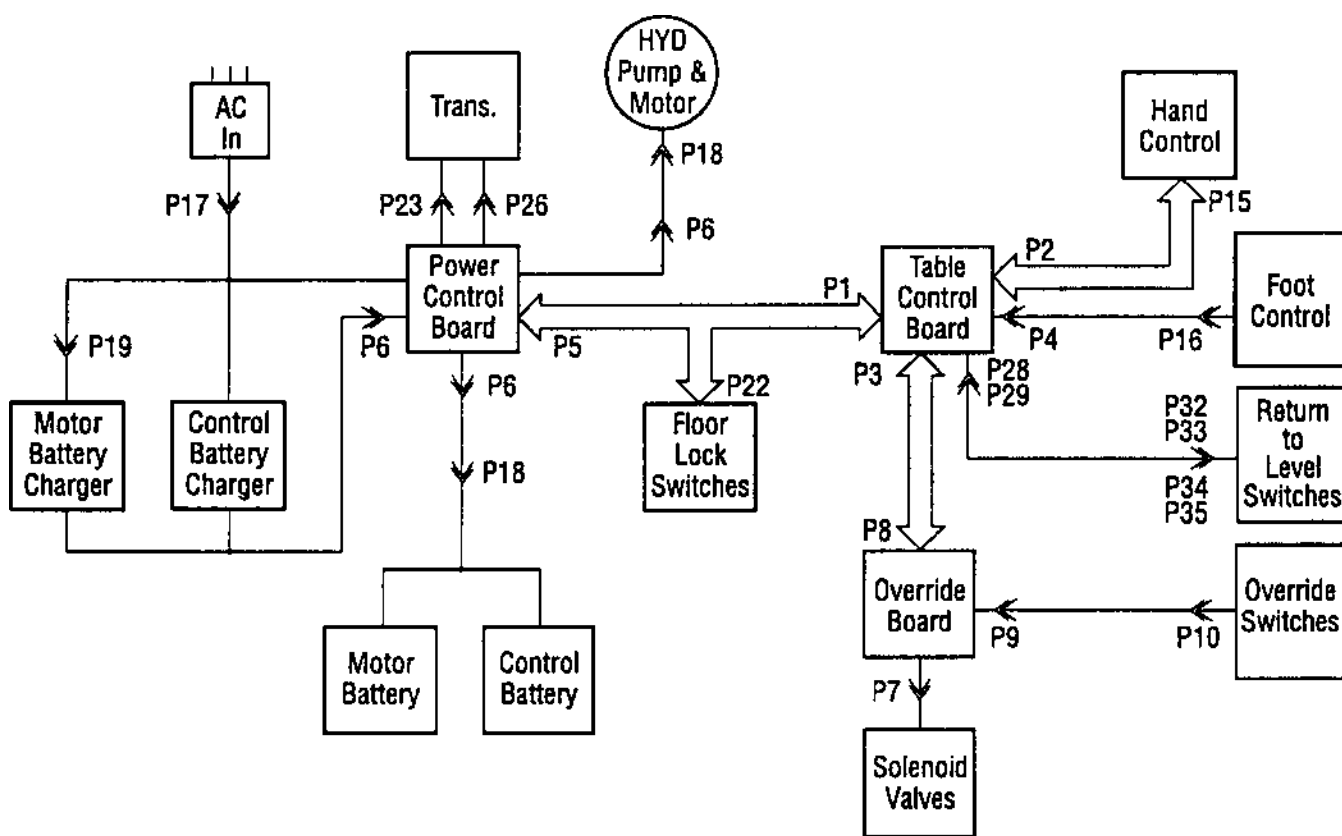
Isolate the coil and/or pump motor from the control by disconnecting the wires on the motor terminal board, or slip the wires off the solenoid coil.

- To completely disconnect power to the table, the line cord as well as the batteries **must** be disconnected.
- When resoldering or replacing any of the table or floor-lock microswitches, isolate the control by disconnecting its associated plug.



QUANTUM 3080 - B4 Tables

Surgical Table



Quantum 3080 Table Block Diagram
(see electrical schematics for more detailed information)

TABLE 11-1. ELECTRICAL SYSTEM TROUBLESHOOTING

Problem	Symptom/Cause	Remedy	Where to Find
1. Table cannot be turned on by hand control	1. Check operation using override switches.	1) Proceed to Problem 2 if no operation.	
	2. Listen for operation of CR3 in power-control assembly when ON/OFF switches are activated.	1) Check continuity of ON circuit from hand control to power control assembly. Replace hand control or repair open wire. 2) Check for 24 VDC on P1-6 and P1-9. Replace power control PC board if no voltage.	System Schematic Sec. 12.6.3
	3. Check for 5 VDC on table control PC board.	1) Check P5/P1 cable continuity. Repair or replace cable. 2) Replace table control PC board.	System Schematic Sec 12.6.1
2. No override switch operation with line cord plugged in.	1. Check F1 and F2 line fuses.	1) Replace fuses.	Sec. 4.52
	2. Check CB1.	1) Reset circuit breaker.	Sec. 4.5.1
	3. Check for 24 VDC across P6-2 and P6-13.	1) Replace power control PC board.	Sec. 12.6.3
	4. Check for 24 VDC at hydraulic pump motor terminal board with a switch activated.	1) Repair or replace pump motor if voltage is present.	Fig. 13-7
	5. Check for "E motor on signal" at P5-15 with a switch activated. Should be at DC ground potential.	1) Replace power control PC board if signal is present.	Sec. 12.6.1
	6. Check for 24 VDC solenoid coil voltage at P5-1.	1) Replace power control PC board if no voltage is present.	Sec. 12.6.1
	7. Check P8 and P5 for continuity or loose plugs.	1) Repair or replace cable.	
	8. Check override switches for continuity.	1) Replace override switch board.	Sec. 12.6.2
	9. Check P9/P10 cable for continuity or loose plugs or pins	1) Repair or replace cable. 2) Replace override control board.	Sec. 12.6.3
3. No override switch operation when line cord is not plugged in.	1. Check for operation when line cord is plugged in.	1) See Problem 2.	
	2. Check control and motor battery voltages.	1) Charge batteries by plugging the line cord. 2) Proceed to Problem 4.	Sec. 4.6
	3. Check the wiring and cable plugs between batteries and power control PC board.	1) Repair cable. 2) Replace power control PC board.	Sec. 12.6.4



TABLE 11-1.ELECTRICAL SYSTEM TROUBLESHOOTING (continued)

Problem	Symptom/Cause	Remedy	Where to Find
4. Batteries will not charge; low battery or depleted battery signal on hand control	1. Check line fuses F1 and F2.	1) Replace fuse(s).	Sec. 4.5.2
	2. Check the charger line fuses F3 and F4 (battery table only)	1) Replace fuse(s).	Sec. 4.5.2
	3. Check the charger circuit breakers CB 3 (control), CB4 (motor) and CB2 (motor battery).	1) Reset circuit breaker.	Sec. 4.5.1
	4. Check for +24 VDC at charger output. For isolation, disconnect the battery prior to measuring.	1) Replace battery charger.	Sec. 12.9
	5. Check all cables between the batteries and the charger.	1) Replace batteries. 2) Replace power control PC board.	Sec. 12.6.3
	6. Check for charger voltage on wires to the battery. For isolation, disconnect the battery prior to measuring.	1) Replace power control PC board.	Sec. 12.6.3
5. No "AC ON" light on hand control when line cord is plugged in.	1. Check for battery charger voltage(s).	1) See Problem 4.	
	2. Check for 24 VAC (transformer secondary) across P6-9 and P6-10).	1) Reset CB1. 2) Replace transformer. 3) Replace power control PC board.	Sec. 9.5.1 Sec. 12.10 Sec. 12.6.3
	3. Check for 0 VDC (DC ground potential) at P5-6 or P1-21.	1) Replace power-control PC board.	Sec. 12.6.3
	4. Check P1/P5 cable for continuity.	1) Replace table-control PC board.	Sec. 12.6.1
6. "AC ON" light will not go off when line cord is unplugged.	1. Disconnect wire #69 at P5-6 or P1-21.	1) If light goes off, replace power control PC board. 2) If light stays on, replace table control PC board.	Sec. 12.6.3 Sec. 12.6.1
7. Floor-lock "LOCK" light will not come on.	1. Check LS1 and LS2 switch adjustment on back locking legs.	1) Adjust switches.	
	2. Check the solder joints at microswitch terminals.	1) Resolder as necessary.	
	3. Carefully ground (DC ground) wire #82 at P27-1 to simulate that floor locks are locked.	1) Check for continuity between P1-20 and P27-1.	System Schematic
	4. Check at P1-20	1) Replace the table control PC board if "LOCK" light did not come on.	Sec. 12.6.1

TABLE 11-1. ELECTRICAL TROUBLESHOOTING (continued)

Problem	Symptom/Cause	Remedy	Where to Find
8. Table will not raise with hand control, pump runs.	1. Check LS5 (raise) limit switch is energized if unit is at other than full height.	1) Adjust or replace switch assembly.	Sec. 5.11.3
9. No flex or reverse Trendelenberg w/hand control.	1. Seat limit switch (LS3) is defective, stuck or out of adjustment.	1) Adjust or replace switch assembly. 2) Replace rubber boot.	Sec. 5.11.3
10. No flex or Trendelenberg w/hand control.	1. Back limit switch (LS4) shorted, stuck closed, or out of adjustment.	1) Adjust or replace switch assembly. 2) Replace rubber boot.	Sec. 5.11.2
11. Green "ON" LED flashing.	1. Optional foot control switch was actuated when hand control switched ON; control logic error disables foot control functions.	1) Turn hand control OFF, then ON to reset controls.	Table 3-1
	2. Faulty foot control - foot control function is disabled.	1) Replace foot control.	
12. Failure of R/L.			
a. Return to level actuated no motion.	1. P28 & P29 connectors. 2. P31-32 connectors. 3. P33, 34, 35, 36 connectors.	1) Assure all are secure.	Refer to Electrical Schematic
b. One section continues past level.	1. Short in level switch.	1) Test with ohmmeter. Replace if necessary.	Refer to Electrical Schematic
c. One section not at level but does not move to level.	1. Open level switch.	1) Test with ohmmeter. Replace if necessary.	Refer to Electrical Schematic

NOTE (for 12.b. and c.): If leg section; whole assembly P-136807-731 must be replaced and readjusted as per Section 8-15.

TABLE 11-2. BATTERY DIAGNOSTICS

Battery	Low Battery LED Status	
	On	Flashing
Motor	22.7 VDC	21.6 VDC
Control	23.6 VDC	22.7 VDC



TABLE 11-3. HAND CONTROL DIAGNOSTICS CHART

Indication	Condition	Corrective Action
Control ON - Green AC LED and red BATTERY LED flashing.	AC power connected, low or discharged batteries.	Charge batteries.
Control ON - Green BATTERY LED on and red BATTERY LED flashing.	Battery Operation: Low or discharged batteries - If discharged, control shutdown after 3-1/2 min. when table in use, or after 30 sec. if condition exists at power-up.	Charge batteries.
Control ON - Green BATTERY LED (only) on when table plugged into AC receptacle.	Battery level acceptable; faulty battery charger or power circuit.	Check AC power cord - replace if necessary. Check fuses F1 and F2 - replace if necessary. Reset circuit breaker CB-3. Reset circuit breaker CB-4.
All green and red LEDs flashing.	No communication between table control and hand control.	Check hand control connection. Replace hand control if necessary.
Green "ON" LED flashing.	Optional foot control switch was actuated when hand control switched ON; control logic error disables foot control functions. Faulty foot control - foot control function is disabled.	Turn hand control OFF - then ON to reset controls. Replace foot control.
All LEDs go off.	Hand control unplugged while table control ON - control automatically shuts off after one min. Line Powered Table, AC power off - control automatically shuts off six hours after last function selected. Battery Powered Table, floor locks off - control automatically shuts off 30 min. after last function selected. Battery Powered Table, AC power off - control automatically shuts off 24 hours after last function selected.	Reconnect hand control. Reconnect AC power. Activate floor locks. Reconnect AC power.
Green AC LED flashing.	Faulty foot control - foot control function is disabled.	Replace foot control as outlined in Section 3.

11.4 ELECTRICAL SCHEMATICS

The following electrical schematics which should be used in conjunction with Table 11-1, Electrical Troubleshooting Chart, to understand electrical system operation.

		TABLE TYPE
• SYSTEM SCHEMATIC - 3080 BIERI HYDRAULICS (P-141210-126)	Part 1 of 3	-B4
	Part 2 of 3	-B4
	Part 3 of 3	-B4
• POWER CONTROL SCHEMATIC (P-146653-761)	Part 1 of 1	BOTH
• POWER CONTROL BOARD ASSEMBLY (P-146653-764)	Part 1 of 1	BOTH
• OVERRIDE SWITCH SCHEMATIC (P-141210-127)	Part 1 of 1	-B4
• OVERRIDE CONTROL BOARD ASSEMBLY (P-141210-139)	Part 1 of 1	-B4
• 3080 TABLE CONTROL BOARD ASSEMBLY (P-146655-473)	Part 1 of 4	BOTH
	Part 2 of 4	BOTH
	Part 3 of 4	BOTH
• HAND CONTROL SCHEMATIC (P-141210-172)	Part 1 of 2	BOTH
	Part 2 of 2	BOTH
• OPTIONAL FOOT CONTROL ASSEMBLY (P-755716-207)	Part 1 of 1	BOTH

3080 "B-TYPE" HYDRAULIC COMPONENT REPAIR AND REPLACEMENT

This section of manual is intended to identify maintenance procedures that are different than non-B-type (Bieri) hydraulic tables. In the event that you are performing technical repairs to a B-type table you should follow the procedures identified in this document. If the procedure that you are attempting to perform is not identified in this section, refer to Section 8.

NOTE: For any reason that you may need assistance while troubleshooting or maintaining any 3080 Surgical Table, contact STERIS Engineering Service for assistance.

12.1 HYDRAULIC SYSTEM PRESSURE TEST

1. Remove the batteries as outlined in Section 8 - Battery Removal/Replacement.

NOTE: Some tables may have the pressure adjustment on the outer edge of the pump manifold instead of the inner edge. In this case, the batteries do not need to be removed.

2. Remove the cap from the pressure test port located on the pump pressure port banjo fitting (see Section 5.3).
3. Install the pressure gauge into the test port using the hose supplied in the tool kit.
4. Using the override switches, operate a table function to the end of its limit (mechanical stop). With the movement stopped, but the pump still running (pump dead-headed), check the relief valve setting by monitoring the gauge. The setting should be 1750 (-25 or +50) psi.
5. If adjustment is necessary, loosen the locking or jam nut on the adjusting screw located on the battery side of the pump. Rotate the adjusting screw until the proper pressure is reached.
6. Remove the pressure gauge and reinsert the test cap.
7. Reinstall the battery if removed.

12.2 TABLETOP LEG SECTION

1. The leg section's articulation is powered by two hydraulic cylinders; one on the right side and one on the left side. The stroke of the cylinders is adjustable with cylinder rod stops to provide the same total articulation on each side. The leg section adjustment is made without the top board and all angles are measured with respect to the seat section casting.
2. Articulate the leg section to its full up position using override switches. Measure and record the angle of each leg frame.
3. The up adjustment is made with shims between the seat section frame and cap end cylinder clevis. Add shims to increase the angle by approximately 1.0 degree.
4. Loosen the cap screws, insert or remove the required shim thickness to give a maximum up position of 80 degrees, then tighten the cap screws. You can access the screws better if the seat section is raised slightly.
5. Repeat steps. There are two sections to the leg, each must be 81 ± 1 degrees and the two should also be within 1 degree of each other.
6. Remove the cap screws one at a time and apply Loctite, then tighten.
7. Articulate the leg section to its full down position, measure and record the angle of each leg section frame.
8. The down adjustment is made by rotating the cylinder rod stops on the cylinder rods. Turn the cylinder rod stops toward the cylinder body to decrease maximum down

articulation or away from the body to increase articulation. $1/8$ revolution of the stop will alter the angle by about 1 degree.

- a. For the right cylinder, which has the return to level hardware attached to it, the attachment bracket (see Fig. 13-19) must be removed prior to "leg down" adjustment. It is important that the cylinder rod stop be adjusted such that one of the radial tapped holes is vertical with respect to the cylinder body.
9. Back the articulation away from its maximum down position a fraction of a degree to allow easy rotation of the cylinder rod stop. Make the necessary adjustment based on steps 7 and 8 to give a maximum down angle of 105 degrees.
 10. Repeat step 7. The measured angles must be 105 ± 1 degree and within one degree of each other. Repeat steps 8 and 9 if necessary.
 11. Apply Loctite to the set screws and tighten in the cylinder rod stops.
 12. Double check all four adjustments. Correct as required.

12.3 REPLACEMENT PROCEDURE - HYDRAULIC CYLINDERS



WARNING!



TABLE FAILURE HAZARD - Breaking hydraulic fittings will cause associated table section to fall and excessive amounts of fluid may flow from the fitting.



IMPORTANT: Holding check valves are located on the column manifolds, not in the cylinders.

12.3.1 Floor Lock, Foot-end, Right (looking at base from foot end)

- **Removal** (see Figure 13-3 unless otherwise noted)

1. Remove shroud as described in Section 8.2.1.
2. Unlock (raise) floor locks so that there is no pressure on them.
3. Disconnect all hose fittings from the tees on the cylinder (#32).

NOTE: Install clean cap on end of hose to prevent contamination.

4. Use a hammer and punch to remove the pivot pin or remove o-rings where used.
5. Unscrew cylinder rod from shaft and link assembly using an Allen wrench.
6. Lift cylinder away from base.
7. Remove fittings from cylinder.
8. Wipe fittings and put them on a lint-free cloth until reuse.

- **Replacement** (see Figure 13-3 unless otherwise noted)

1. Remove new cylinder from plastic bag and install fittings (from old cylinder) on new cylinder orienting them as closely as possible to the correct position.
2. Tighten cylinder rod into shaft and link assembly (#13, Fig. 13-4). Reinstall the pivot pin (#35).
3. Reattach hoses. Tighten retaining nuts on the hose fittings.
4. Operate floor lock several times and check for leaks.

Note: Apply Loctite 290 where cylinder rod attaches to clevis.

12.3.2 Floor Lock, Foot-end, Left (looking at base from foot end)

- **Removal** (see Figure 13-3 unless otherwise noted)

1. Remove shroud as described in Section 8.2.1.
2. Unlock (raise) floor locks so that there is no pressure on them..
3. Detach hydraulic hoses from the two elbow fittings on the cylinder noting the punch of each hose.
4. Remove the power supply assembly as outlined in section 8.5.
5. Use a hammer and punch to remove the pivot pin or remove o-rings where used.
6. Unscrew cylinder rod from shaft and link assembly using an Allen wrench.
7. Remove cylinder from base.
8. Remove fittings from cylinder.
9. Wipe fittings and put them on a lint-free cloth until reuse.

- **Replacement** (see Figure 13-3 unless otherwise noted)

1. Remove new cylinder from plastic bag and install fittings (from old cylinder) on new cylinder orienting them as closely as possible to the correct position.
2. Tighten cylinder rod into the shaft and link assembly (#13, Fig. 13-4). Reinstall the pivot pin (#35).
3. Reattach hoses. Tighten retaining nuts on the hose fittings.
4. Operate floor lock several times and check for leaks.

Note: Apply Loctite 290 where cylinder rod attaches to clevis.

5. Adjust floor lock switch.
6. Loctite switch adjusting screw using Loctite 290.

12.3.3 Floor Lock, Head-end

- **Removal** (see Figure 13-3 unless otherwise noted)

1. Remove shroud as described in Section 8.2.1.
2. Unlock (raise) floor locks so that there is no pressure on them.
3. To remove this cylinder it is necessary to remove the counterweight from the table base.
4. Remove two screws and lock washers holding the counterweights to the table base.
5. Remove the counterweight from the table base.

NOTE: This floor lock has no microswitch, but the cam override assembly still needs to be adjusted.

6. Remove all hydraulic hoses.
7. Use a hammer and punch to remove the pivot pin or remove o-rings where used.
8. Unscrew cylinder rod from shaft and link assembly using an Allen wrench.
9. Remove cylinder from base.
10. Remove fittings from the cylinder.
11. Wipe fittings and put them on a lint-free cloth until reuse.

- **Replacement** (see Figure 13-3 unless otherwise noted)

1. Remove new cylinder from plastic bag and install fittings (from old cylinder) on new cylinder orienting them as closely as possible to correct position.
2. Tighten cylinder rod into shaft and link assembly. Reinstall pivot pin.
3. Reattach hoses. Tighten retaining nuts on the hose fittings.
4. Operate floor lock several times and check for leaks.

Note: Apply Loctite 290 where cylinder rod attaches to clevis.

5. Reinstall counterweight.

12.3.4 Back Section Cylinders

See Back Section Cylinders in Section 8.

12.3.5 Leg Section Cylinders

Same as Leg Section Cylinders in Section 8, except for following notes.

NOTE: If right cylinder is replaced, the return-to-level procedure must be performed.

NOTE: For right cylinder removal, it is necessary to remove the return-to-level switch package by removing mounting set screw and red bracket from cylinder jam nut.

12.3.6 Seat Section Cylinder

See Seat Section Cylinder in Section 8.

12.3.7 Side Tilt Cylinder

- **Removal** (see Figure 13-12 unless otherwise noted)

1. Raise table to highest position.
2. Lower the shroud.
3. Position table in full right-side tilt, then in the reflex position.
4. Separate the two-piece shroud.
5. Remove the two pipe plugs holding the clevis pins through the saddle and cylinder knuckle.
6. Drive the two clevis pins (from the seat section side) through the knuckle enough to release the side tilt cylinder. The cylinder should now be loose. Position the table into far right side tilt.
7. Position the table to full left side tilt to fully retract the cylinder.
8. Remove the hydraulic hoses (note each hose position), then place caps on the fittings.
9. Remove the two socket-head cap screws and washers holding the cylinder bracket to the column.
10. Tap bracket (from behind) to move it off of the locating pin.

11. Pull the cylinder down and away from the table. Be careful not to pull out any electrical plugs.

12. Remove the set screw holding the pivot pin out of the bracket.

13. Use a large punch to tap the pivot pin out of the bracket.

NOTE: Pin is inserted with interference fit, it may be difficult to tap out.

14. Remove the fittings from the cylinder.

- **Replacement** (see Figure 13-12 unless otherwise noted)

1. To replace the cylinder, reverse the previous procedure.

12.3.8 Side Tilt Cylinder Adjustment



CAUTION!



Before articulating or making any adjustments to the table, be certain that no electrical or hydraulic hoses are subjected to stress or pinching.

1. Articulate table to level position.
2. Articulate table into a fully right side tilt. Using a digital protractor, measure the angle of the right tilt.



CAUTION!



Tilt articulation must be activated while adjusting the cylinder rod to release the brake mechanism. Failure to do this will destroy the cylinder.

3. If tilt angle is not 18 degrees +/- 2 degrees, adjust angle as follows:
 - a. While pressing the hand control button for right side tilt, use a 5/8" open end wrench and rotate the cylinder shaft until 18 degrees +/- 2 degrees is achieved.

NOTE: If during the adjustment process the cylinder will not turn, position the table into approximately 5 degrees of left tilt and retry the adjustment procedure.

4. Articulate the table into full left tilt and measure the degree of tilt. Angle must be 18 degrees +/- 2 degrees. It may be necessary to re-adjust the right tilt to obtain this angle.
5. Reinstall the clevis locking plate using the two socket head screws. Make certain the cylinder rod flat is square with the machined step on the clevis. This will secure the side tilt adjustment.

12.4 REPLACEMENT PROCEDURES - COLUMN HYDRAULIC VALVES

There are 10 hydraulic valves on the column. S1-S8 are spool type valves and S9 and S10 are cartridge type valves. See Figure 13-11.

12.4.1 S1 to S8

See Section 13, Fig. 13-11.

IMPORTANT: Removing the valve causes some hydraulic fluid leakage. Have a lint-free cloth available to catch any leakage.

1. Disconnect AC Power.
2. Remove shroud as described in Section 8.2.1.
3. Raise table to the highest position.
4. To support the raise/lower mechanism, insert a screwdriver through the access hole at the back of the column. Slowly lower table until it contacts screwdriver.
5. Position table in sufficient left-side tilt to access the table control board mounting screws.
6. P4 needs to be removed to access the lower mounting screws.
7. Gently reposition the table control board to gain access to the valve coils located behind the table control board.



8. Remove the coil jam nuts (19 mm) from the desired pair of spool valves.
9. Slide the coil off of both the left and right side of the manifold assembly.
10. Loosen each solenoid housing using a deep socket (24 mm). With the lint-free cloth under each housing to catch any leakage, unthread each housing by hand and remove from the valve manifold.
11. Wipe up any spillage.
12. Remove solenoid stem on the control board side by sliding stem off the valve slide.



CAUTION!



Retaining washer and spring may quickly expel from the valve block.

13. Remove the washer and pressure spring.
14. Remove solenoid stem and slide by pulling right stem out of the manifold block.
15. Inspect the plunger for wear and replace as necessary.
16. To replace the valve, reverse this procedure.

12.4.2 S9 and S10

See Figure 13-11

1. Disconnect the AC Power.
2. Remove the shroud as described in Section 8.2.1.
3. Raise the table to its highest position.
4. To support the raise/lower mechanism, insert a screwdriver through the access hole at the back of the column. Slowly lower table until it contacts screwdriver.
5. Position table in sufficient left-side tilt to access the table control board mounting screws.

6. Remove the jam nut (19 mm) holding the solenoid coil.
7. Remove coil and position it out of the way.
8. Loosen each solenoid housing using a deep socket (24 mm). With the lint-free cloth under each housing to catch any leakage, unthread each housing by hand and remove from the valve manifold.



CAUTION!



Plunger is equipped with a spring which may expel from the housing upon removal of the plunger housing.

9. Remove the pressure spring from the plunger.
10. Remove the plunger by sliding it off of the spool.
11. Replace the spool, o-ring, plastic seat, and brass washer as necessary, note the orientation of each.
12. When reinstalling the spool, o-ring, plastic seat, and brass washer, be sure that they are reassembled in the plunger housing as a unit and in the proper order before installing the plunger housing.
13. To replace the valve, reverse this procedure.

12.4.3 S11 and S12

See Figure 13-7

1. Remove the front base shroud.
2. Remove the front battery (closest to the counterweight) as outlined on page 12-5.
3. Remove the jam nuts (19 mm) from both solenoids (S11 and S12).
4. Slide the coil off of both the left and right sides of the manifold assembly.
5. Loosen each solenoid housing using a deep socket (24 mm). With the lint-free cloth under each housing to catch any leakage, unthread

each housing by hand and remove from the valve manifold.

6. Wipe up the spillage.
7. Remove the solenoid stem on the control board side by sliding the stem off of the valve slide.



CAUTION!



Plunger is equipped with a spring which may expel from the housing upon removal of the plunger housing.

8. Remove the washer and pressure spring.
9. Remove the solenoid stem and slide by pulling the right stem out of the manifold block.
10. Inspect the plunger for wear and replace as necessary.
11. To replace the valve, reverse this procedure.

12.4.4 S13

See Figure 13-7

1. Remove the front base shroud.
2. Remove the jam nut (13 mm).
3. Remove and replace the cartridge assembly using a 19 mm wrench.
4. Reinstall in reverse order.

12.5 VALVES IN FITTINGS

Hold a lint-free cloth under fittings when loosening and removing.

Before beginning any of the following fitting procedures, perform the following steps:

1. Remove the shroud as described in Section 8.2.1.
2. Raise the table to its highest position.
3. Support the raise/lower mechanism by inserting a screwdriver through the access hole on the back of the column. Slowly lower the table until it contacts the screwdriver.

12.5.1 Check Valves (Raise/Lower)

See Figure 13-11.

1. Identify appropriate check valve to be replaced.
2. Secure the top section requiring the check valve replacement to:
 - a. Keep the section from falling when hydraulic line is opened.
 - b. To minimize fluid loss.
 - c. Reduce the changing time.



Failing to secure section will result in sudden lowering of that section.

3. Loosen and remove the banjo fitting bolt using a 14 mm wrench. Note the position of the banjo fittings seals.
4. Remove the check valve cartridge from the manifold using a 17 mm wrench.
5. Remove the check valve spring and ball.
6. Replace and reassemble in reverse order.

NOTE: Banjo fittings must be torqued to 142 in/lbs (12 ft/lbs).

12.5.2 Check Valve (Seat and Back)

See Figure 13-11

1. Identify appropriate check valve to be replaced.
2. Secure the top section requiring the check valve replacement to:
 - a. Keep the section from falling when hydraulic line is opened.
 - b. To minimize fluid loss.
 - c. Reduce the changing time.



CAUTION!



Failing to secure section will result in a sudden lowering of that section.

3. Remove the cap screw securing the manifold to the column.
4. Loosen the four cap screws on top of the manifold.



CAUTION!



Before removing the screws entirely, be sure to grasp the lower part of the manifold.

5. Completely loosen the cap screws on top of the manifold while grasping the lower section of the manifold.
6. Remove and replace, as necessary, the 6 mm ball and pressure spring.
7. Carefully reassemble in reverse order.

12.6 PC BOARD REPLACEMENT

12.6.1 Table Control PC Board Assembly

This procedure is the same as Section 8.4.1 except that care must be taken to assure proper jumper configuration is made during installation.

12.6.2 Override Control PC Board Assembly

1. Lower the table to the lowest position.
2. Remove the four cap hex socket-heads screws securing the upper shroud to the shroud cap assembly.
3. Lower the shroud pieces.
4. Raise the table to the highest position.

5. Remove the screws and lock washers holding override box assembly to the column.
6. Disconnect the cable assemblies.
7. Remove the assembly from the table.
8. Install the new assembly in reverse order.

12.6.3 Power Control PC Board

See Section 8.4.4.

12.7 POWER SUPPLY ASSEMBLY

See Section 8.5.

12.8 BATTERY REMOVAL/REPLACEMENT

1. With the AC power removed, disconnect the four battery terminal wires and note their positions.
2. Remove the two 8x32 nut and screw combinations from each end of the motor battery bracket.
3. Gently lift and remove.
4. Replace or reinstall batteries in the reverse order.

12.9 MOTOR BATTERY CHARGER MODULE REPLACEMENT

See Battery Removal/Replacement in Section 8.6.

12.10 TRANSFORMER REPLACEMENT

See Battery Removal/Replacement Section 8.7.

GENERAL

Assemblies and components of the Quantum 3080 table are illustrated and identified on the following pages. The part number, the description and the quantity required for each usage are given. Each indentation in the description represents the assembly level. The UNITS PER ASSEMBLY column is specific for the given assembly or subassembly level.


How to Use the Illustrated Parts Breakdown

- ① Determine the function and application of the part required. Turn to the list of illustrations and select the most appropriate title. Note the illustration page number.
- ② Turn to the page indicated and locate the desired part on the illustration.
- ③ From the illustration, obtain the index number assigned to the part desired. Refer to the accompanying description for specific information regarding the part.

Typical Indentation Example

No Indentation -
part of top
assembly

One Indentation -
first subassembly,
part of assembly
under which it is
indented



			SHROUD ASSEMBLY
P	136807	084	ASSEMBLY, Base Shroud
P	146653	758	• SHROUD, Base, Front Half
P	146653	759	• SHROUD, Base, Back Half
P	146653	528	SHROUD, Bottom Intermediate
P	146653	459	SHROUD, Top Intermediate



13.1 SPECIAL INSTRUCTIONS

Table 13-1 gives the part numbers and figure references of the most com-

monly replaced items on a 3080 table. It is for quick reference only. For a complete listing of parts, refer to the appropriate exploded view.

TABLE 13-1. 3080 RL/SP PARTS, QUICK REFERENCE GUIDE

Part	Description	Part Number	Reference
Hydraulic Cylinders	Leg, Left	P-141210-145	Fig. 13-15, Item 6
	Leg, Right	P-141210-146	Fig. 13-15, Item 5
	Back, Left	P-134469-140	Fig. 13-16, Item 2
	Back, Right	P-134469-145	Fig. 13-16, Item 3
	Seat	P-134469-142	Fig. 13-12, Item 4
	Side Tilt Cylinder	P-141210-108	Fig. 13-12, Item 5
Circuit Boards	Table Control Board	P-146655-481	Fig. 13-3, Item 27
	Override Board	P-141210-139	Fig. 13-13, Item 44
	Power Supply Assembly	P-136807-103	Fig. 13-4, Item 40
	• Power Control PC Board	P-760265-598	Fig. 13-4, Item 43
	Battery Charger (motor only)	P-146653-939	Fig. 13-2, Item 7
Kits	Hydraulic Oil Kit	P-764322-636	
	Hand Control, RL/SP	P-141210-208	
	• Hand Control Cord Replacement Kit	P-764325-629	
	• Hand Control Circuit Board	P-764325-633	
	• Hand Control Housing Kit	P-764325-630	
	Touch-up Paint (Dark Gray, 12 oz. can)	P-764319-808	
	Touch-up Paint (60cc; Off-white)	P-150824-607	
	Foot Control Switch Kit	P-764326-690	
	Foot Control Cord Kit	P-764326-689	
	Check Valve Kit	P-150823-727	
	Reservoir Replacement Kit	P-150823-864	
	Lift Cylinder Ram Seal Kit	P-764324-901	
	Column Seal Spanner Wrench	P-764324-884	



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Surgical Table

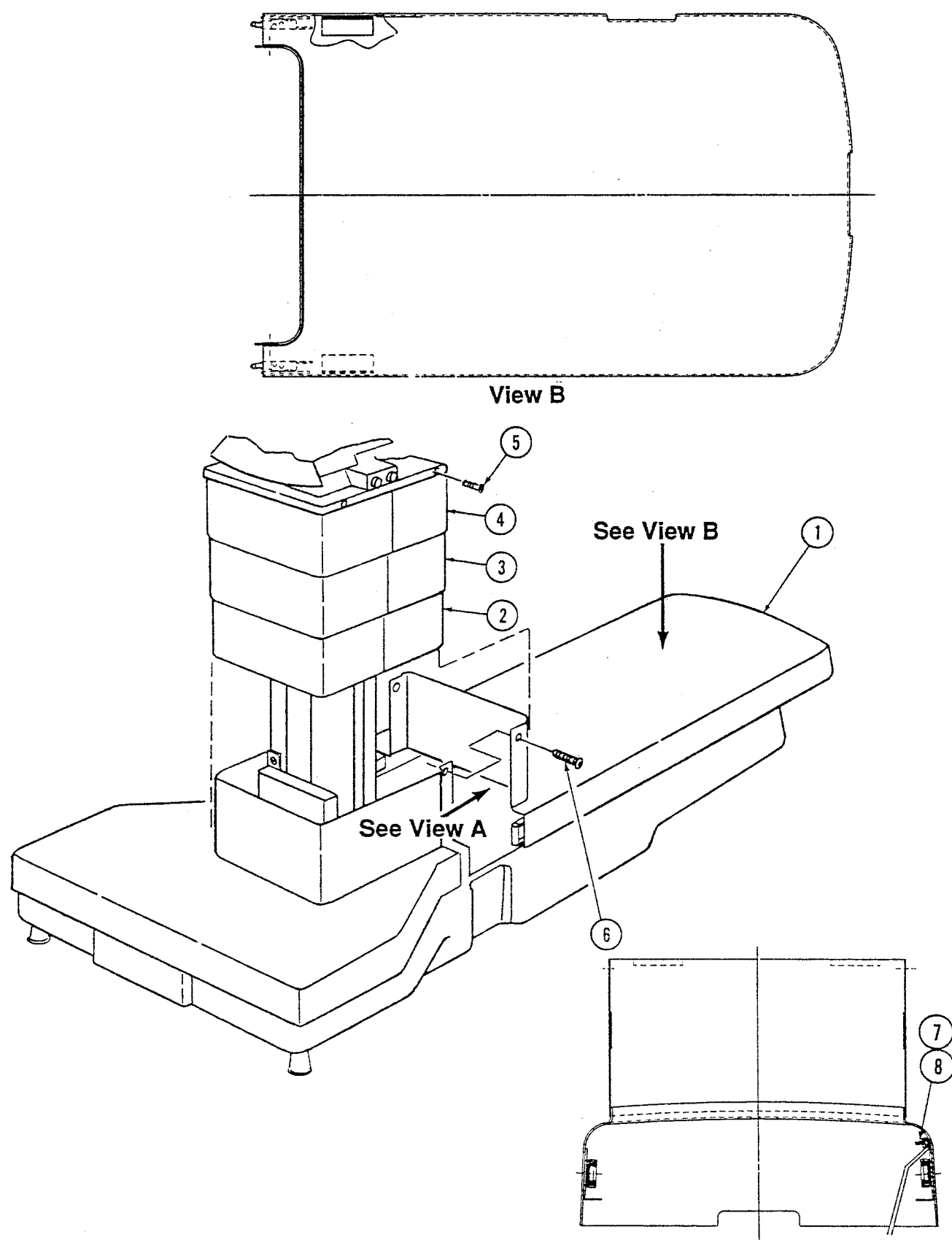


FIGURE 13-1. Shroud Assembly

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
13-1-					SHROUD ASSEMBLY - SP	X			
					SHROUD ASSEMBLY - RL		X		
	1	P	141210	086	ASSEMBLY, Base Shroud	1	1		
	2	P	146653	528	SHROUD, Bottom Intermediate	1	1		
	3	P	146653	459	SHROUD, Top Intermediate	1	1		
	4	P	760265	850	ASSEMBLY, Upper Shroud with Decals (SP, Battery Table)	1			
		P	760265	851	ASSEMBLY, Upper Shroud with Decals (SP, Electric Table)	1			
	5	P	129360	882	SCREW, Cap, Hex Sockethead, #10-24 x 3/8	4	4		
	6	P	3967	041	SCREW, Machine Roundhead, #8-32 x 1/4	2	2		
	7	P	2960	042	NUT, Hex #10-32	1	1		
	8	P	124361	031	LOCKWASHER, External Tooth #10	1	1		
	9	P	93909	734	LABEL, Manual Pump (not shown)	1	1		
	10	P	56397	351	LABEL, Caution "Do Not Use For Storage" (not shown)	1	1		

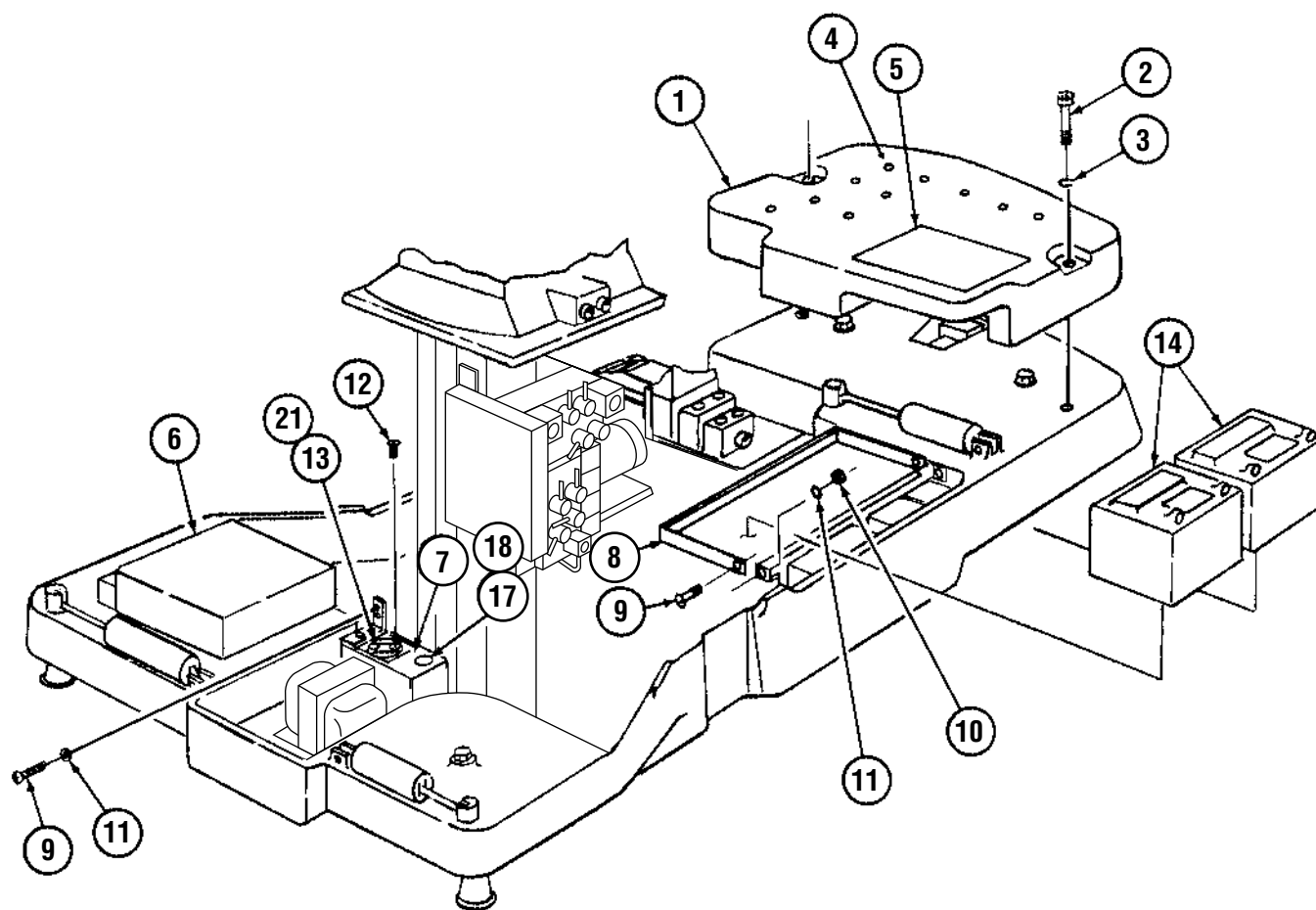


FIGURE 13-2. Table Base Assembly (Part 1 of 3)

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
13-2-	P				TABLE BASE ASSEMBLY - 3080SP - (Part 1 of 3)				
					ELECTRIC UNIT	X			
					BATTERY UNIT		X		
	P				TABLE BASE ASSEMBLY - 3080RL - (Part 1 of 3)				
					ELECTRIC UNIT			X	
					BATTERY UNIT				X
1	P	146653	460		COUNTERWEIGHT	1	1	1	1
2	P	129359	896		SCREW, Cap, Hex Sockethead, 3/8-16 x 3-1/4	2	2	2	2
3	P	19680	041		LOCKWASHER, 3/8	2	2	2	2
4	P	129360	481		BUMPON	A/R	A/R	A/R	A/R
5	P	136807	011		LABEL, Battery Replacement	1	1	1	1
6	P	146653	775		POWER SUPPLY, Electric Unit	1			
	P	136807	103		POWER SUPPLY, Battery Unit		1		1
7	P	146653	939		MODULE, Battery Charger (Motor)		1		1
8	P	93909	212		BRACKET, Battery Support (Coated)		1		1
9	P	93908	037		SCREW, Sems, #8-32 x 1/2		4		4
10	P	3153	041		NUT, Hex, #8-32		2		2
11	P	84114	003		WASHER, Flat, #8		4		4
12	P	129360	652		SCREW, Tamper-proof, #4-40 x 1/2		2		2
13	P	129360	653		COVER, Switch		1		1
14	P	136806	806		BATTERY, 12 V (Motor)		2		2
15	P	136807	036		ASSEMBLY, Cable, P25 to Battery (Not Shown)		1		1
16	P	93909	467		JUMPER, Motor Battery (Not Shown)		1		1
17	P	93909	444		FUSE, 1 AMP		1		1
18	P	93908	673		HOLDER, Fuse	1	1	1	1
19	P	129360	598		TIE, Cable (Not Shown)		4		4
20	P	93909	748		JUMPER, Wire, Program, P29 (Not Shown)		1		1
21	P	129360	525		DECAL, Fuse F4	1	1	1	1



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Surgical Table

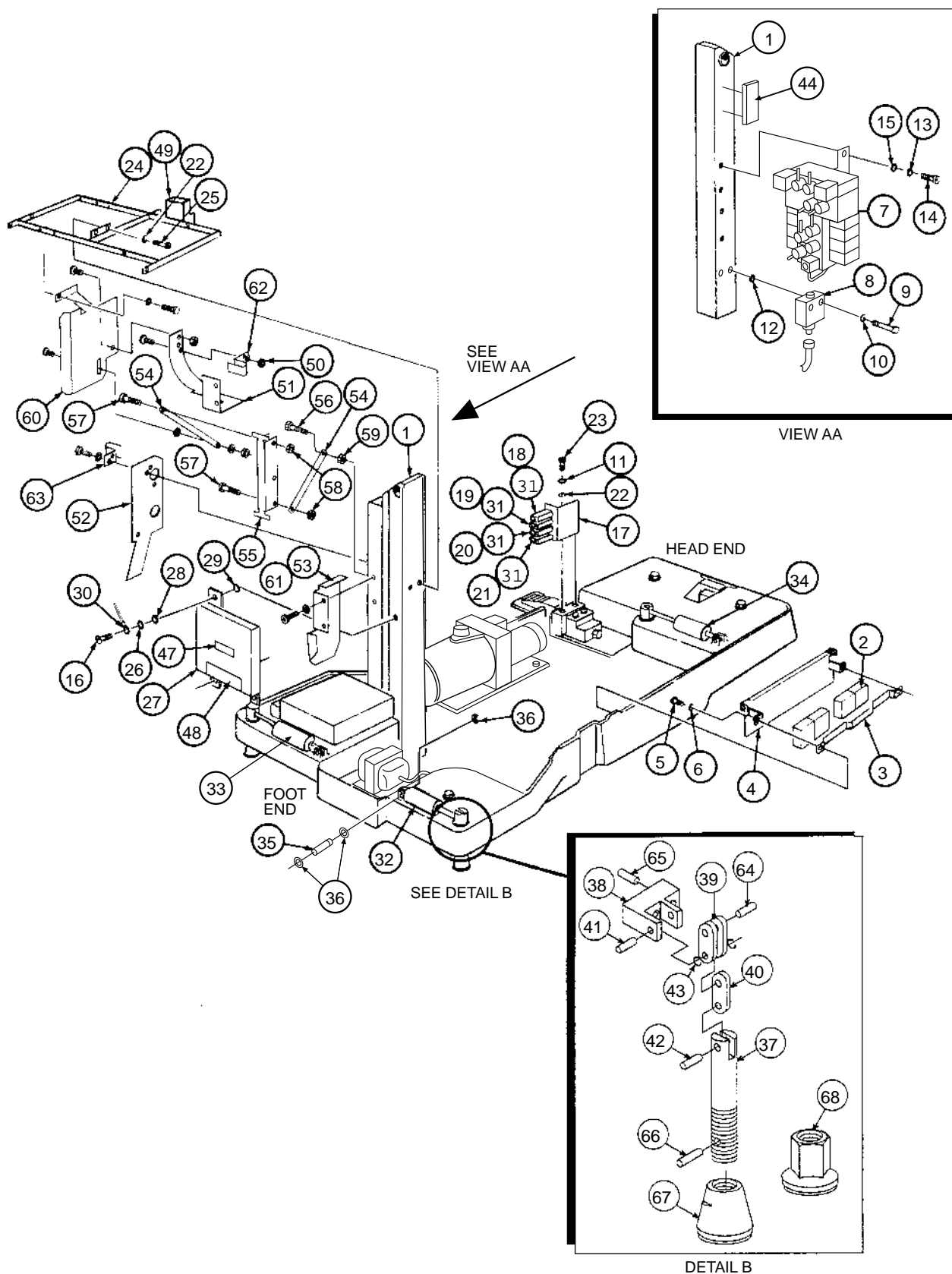


FIGURE 13-3. Table Base Assembly (Part 2 of 3)

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
13-3-					TABLE BASE ASSEMBLY -- 3080SP -- (Part 2 of 3)	X			
					TABLE BASE ASSEMBLY -- 3080RL -- (Part 2 of 3)		X		
1	P	146653	426		COLUMN ASSEMBLY (see Figure 13-9)	1	1		
2	P	93908	637		BATTERY, Control	2	2		
3	P	93909	283		STRAP, Battery Support	1	1		
4	P	136806	807		PLATE, Battery Support	1	1		
5	P	50527	061		SCREW, Cap, Hex Sockethead, #8-32 x 1/2	2	2		
6	P	19676	041		LOCKWASHER, #8	2	2		
7	P	141210	122		ASSEMBLY, Control Block (see Figure 13-11)	1	1		
8	P	134469	149		ASSEMBLY, Column Flange	1	1		
9	P	91521	091		SCREW, Cap, Sockethead	2	2		
10	P	26962	061		LOCKWASHER, 1/4, Internal Tooth	2	2		
11	P	81673	006		WASHER, Flat, 1/4	6	6		
12	P	129359	667		O-RING	2	2		
13	P	19677	041		LOCKWASHER, #10	4	4		
14	P	41012	061		SCREW, Cap, Hex Sockethead, #10-32 x 1/2	4	4		
15	P	17589	045		WASHER, Flat, #10	4	4		
16	P	93908	037		SCREW, Sems, #8-32 x 1/2	2	2		
17	P	136807	018		BRACKET, Circuit Breaker	1	1		
18	P	56397	408		BREAKER, Circuit, 15 AMP	1	1		
19	P	56397	356		BREAKER, Circuit, 12 AMP	1	1		
20	P	93909	320		BREAKER, Circuit, 1 AMP	1	1		
21	P	93909	321		BREAKER, Circuit, 4 AMP	1	1		
22	P	19678	045		LOCKWASHER, 1/4	4	4		
23	P	2792	045		SCREW, Cap, Hex Sockethead, 1/4-20 x 1/2	2	2		
24	P	141210	147		SUPPORT, Shroud Mounting	1	1		
25	P	37676	061		SCREW, Cap, Hex Sockethead, 1/4-28 x 5/8	2	2		
26	P	84114	003		WASHER, Flat, #8	2	2		
27	P	146655	481		ASSEMBLY, Control PC Board Housing	1	1		
28	P	27324	091		WASHER, Flat, Nylon	2	2		
29	P	129360	883		WASHER, Shoulder, Nylon	2	2		
30	P	93909	782		SHIELD, Wire	1	1		
31	P	129360	372		BUTTON, Seal Reset	4	4		
32	P	56397	270		CYLINDER, Hydraulic #1, Floor Lock	1	1		
33	P	56397	271		CYLINDER, Hydraulic #2, Floor Lock	1	1		
34	P	56397	272		CYLINDER, Hydraulic #3, Floor Lock	1	1		
35	P	129359	870		PIN, Cylinder Pivot	3	3		
36	P	36836	091		RING, Retaining	6	6		
37	P	93908	849	*	SHAFT, Floor Lock	1	1		
38	P	93908	850	*	CLEVIS, Cylinder	1	1		
39	P	129360	152	*	LINK, Pivot	2	2		
40	P	129360	151	*	LINK, Shaft	1	1		
41	P	129359	898	*	PIN, Link	1	1		
42	P	129359	899	*	PIN, Shaft	1	1		
43	P	47429	061	*	RING, Retaining, 1/4 Diameter	2	2		
44	P	141210	139		ASSEMBLY, Override Control Board Box	1	1		
45					Item # Not Used				
46					Item # Not Used				
47	P	93909	410		LABEL, Low Battery Indicator	1	1		
48	P	93909	777		LABEL, Caution	1	1		
49	P	136806	477		GUIDE, Hose	1	1		



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FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
50	P	118442	045		LOCKNUT	5	5		
51	P	136806	805		SUPPORT, Hose	1	1		
52	P	136806	804		BRACKET, Hose Guide Support	1	1		
53	P	136807	032		RETAINER	1	1		
54	P	93909	778		LINK, Hose Hanger	2	2		
55	P	93909	217		HANGER, Hose	1	1		
56	P	81667	003		SCREW, Machine Hex Head #10-32 X 1-1/4" Long	1	1		
57	P	27690	041		SCREW, Truss Head #10-24 X 3/4" Long	2	2		
58	P	8646	061		NUT, Hex #10-24	2	2		
59	P	2960	042		NUT, Hex #10-32	2	2		
60	P	136807	038		HOSE, Guide	1	1		
61	P	141210	088		HOSE, Guide Support	1	1		
62	P	129360	267		CLAMP, Hose	2	2		
63	P	129360	268		CLAMP, Hose	1	1		
64	P	129359	900		PIN, Housing	3	3		
65	P	40848	061		SCREW, Set, Sockethead, 1/4-20 x 3/4"	2	2		
66	P	21504	091		CYLINDER, Rubber	3	3		
67	P	150199	001		FOOT	2	2		
68	P	150200	001		FOOT	1	1		
<p>* Item #s 37 - 43 can be replaced as a complete assembly by ordering P-93908-634 (left-hand shaft and link assembly) or P-93908-635 (right-hand shaft and link assembly). See Figure 13-4, items 13 & 14 for a pictorial.</p>									



QUANTUM 3080 - B4 Tables

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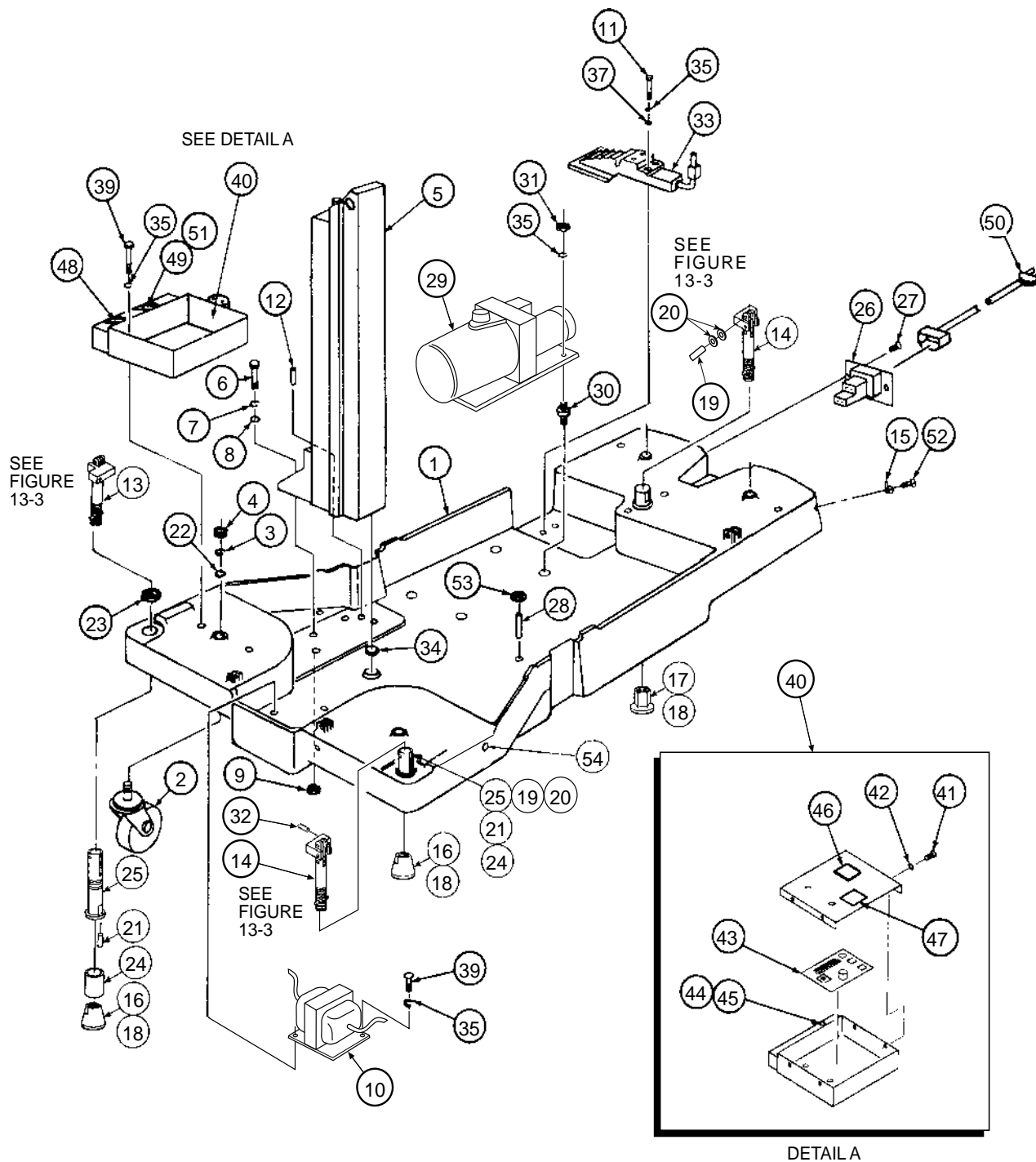


FIGURE 13-4. Table Base Assembly (Part 3 of 3)

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
13-4-					TABLE BASE ASSEMBLY - 3080SP - (Part 3 of 3)	X			
					TABLE BASE ASSEMBLY - 3080RL - (Part 3 of 3)		X		
1	P	146653	465		BASE, Table	1	1		
2	P	93909	361		CASTER, Swivel, 1/2-13	4	4		
3	P	19681	045		LOCKWASHER, 1/2	4	4		
4	P	13397	041		NUT, Hex, 1/2-13	4	4		
5	P	146653	426		ASSEMBLY, Column (see Figures 13-9 and 13-10)	1	1		
6	P	36633	001		SCREW, Cap, Hex Sockethead, 3/8-16 x 1-3/4	4	4		
7	P	19680	041		LOCKWASHER, Flat, 3/8	4	4		
8	P	10412	042		WASHER, Flat, 3/8	4	4		
9	P	129360	496		LOCKNUT, Uni-torque, 3/8-16	4	4		
10	P	136807	033		ASSEMBLY, Transformer, 24 Volt	1	1		
11	P	45613	091		SCREW, Cap, Sockethead, 1/4-20 x 1-1/2	2	2		
12	P	46156	061		PIN, Spring Roll, 5/16 Diameter x 3/4	2	2		
13	P	93908	635		ASSEMBLY, Shaft and Link, Right Hand (see Figure 13-3)	1	1		
14	P	93908	634		ASSEMBLY, Shaft and Link, Left Hand (see Figure 13-3)	2	2		
15	P	129360	565		CLAMP, Wire	1	1		
16	P	150199	001		FOOT	2	2		
17	P	150200	001		FOOT	1	1		
18	P	21504	091		CYLINDER, Rubber	3	3		
19	P	129359	900		PIN, Housing, 5/16 Diameter	3	3		
20	P	24699	091		PIN, Retaining, "E", 5/16 Diameter	6	6		
21	P	36683	061		PIN, Roll, 1/8 Diameter x 1/2	3	3		
22	P	31931	061		WASHER, Flat, 1/2	4	4		
23	P	129360	154		NUT, Retainer	3	3		
24	P	10540	091		BEARING, Plain Olite	3	3		
25	P	136806	493		HOUSING, Floor Lock	3	3		
26	P	134469	091		ASSEMBLY, A.C. Plate (see Figure 13-5)	1	1		
27	P	93908	037		SCREW, Sems, #8-32 x 1/2	2	2		
28	P	129359	849		STANDOFF, 1/4-20	1	1		
29	P	141210	123		ASSEMBLY, Motor and Pump (see Figure 13-7)	1	1		
30	P	45744	001		MOUNTING, Motor (vibration mount)	4	4		
31	P	3097	041		NUT, Hex, 1/4-20	3	3		
32	P	40848	061		SCREW, Set Sockethead, 1/4-20 x 3/4	2	2		
33	P	146653	789		ASSEMBLY, Foot Pump (see Figure 13-6)	1	1		
34	P	129360	876		O-RING, Ram	1	1		
35	P	19678	045		LOCKWASHER, 1/4	14	14		
36	P	91520	091		SCREW, Cap, Hex Sockethead, 1/4-20 x 3	2	2		
37	P	81673	006		WASHER, Flat, 1/4	2	2		
38					Item # Not Used				
39	P	2792	045		SCREW, Cap, Hex Sockethead, 1/4-20 x 1/2	7	7		
40	P	136807	103		ASSEMBLY, Power Supply	1	1		
41	P	93908	035		• SCREW, Sems, #8-32 x 5/16 Long	6	6		
42	P	84114	003		• WASHER, Flat, #8	4	6		
43	P	760265	598		• PC BOARD, Power Control	1	1		
	P	129360	518		• JUMPER	1	1		
44	P	93909	222		• FUSE, 1/2 AMP	1	1		
45	P	93908	673		• HOLDER, Fuse	1	1		
46	P	93909	750		• LABEL, Battery Identification	1	1		



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FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
47	P	93909	405		• LABEL, Fuse Replacement	1	1		
48	P	129360	652		SCREW, Tamper-proof, #4-40 x 1/2	4	4		
49	P	129360	653		COVER, Switch	2	2		
50	P	764324	271		CORD, w/Velcro® Strap	1	1		
	P	56397	185		CORD, Intl. (No Plug)	1	1		
51	P	129360	524		DECAL, Fuse F3	1	1		
52	P	81669	002		SCREW, Truss Head, #10-32 x 1/2	2	2		
53	P	5575	045		WASHER, Flat Plain Wide 1/4"	1	1		
54	P	93909	538		BUMPER ASSEMBLY, Stand-off	5	5		

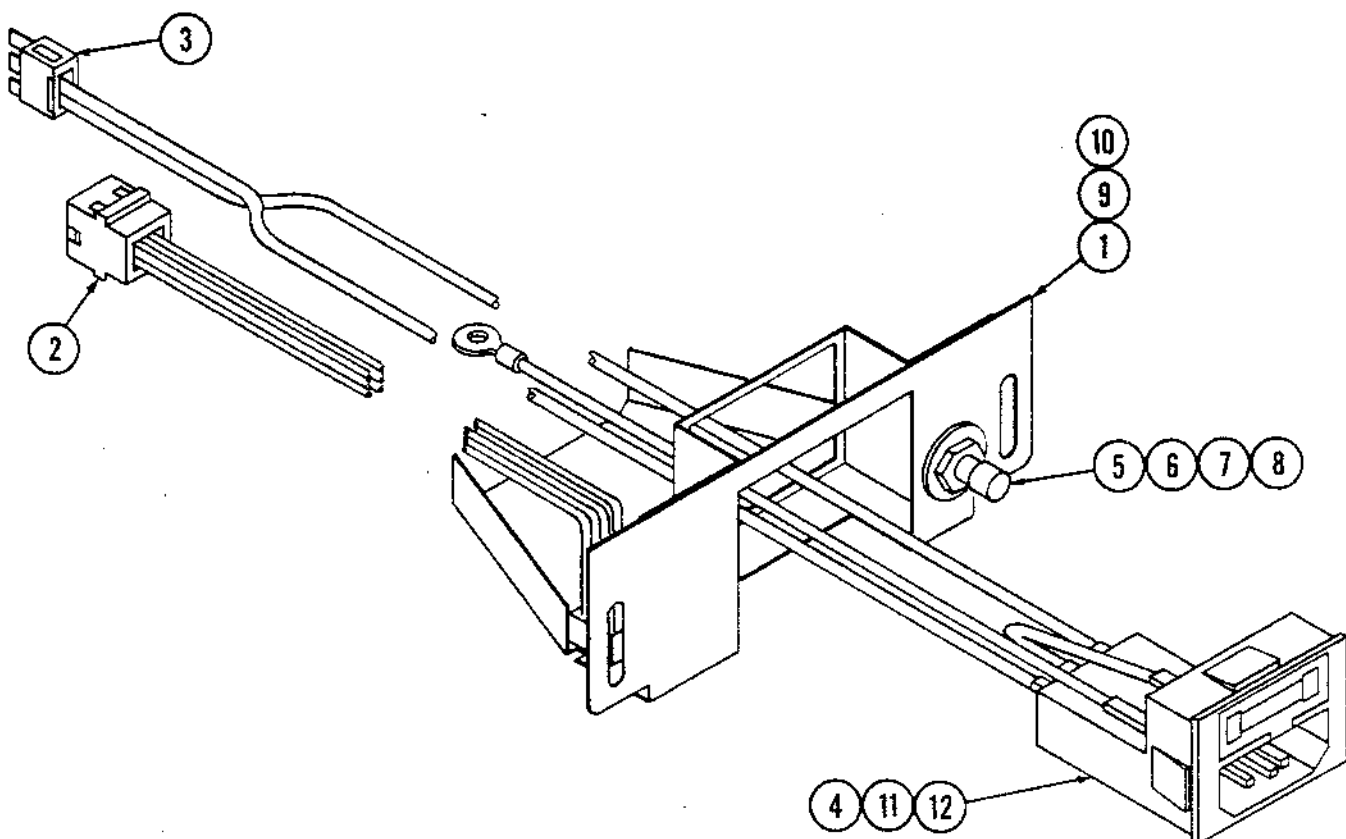


FIGURE 13-5. AC Plate Assembly

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
13-5- 1		134469	091		AC PLATE ASSEMBLY	X			
		764326	376		AC PLATE ASSEMBLY w/LABLES (RL & SP)		X		
	2	P	134469	092	ASSEMBLY, Cable, Floor Lock Override	1	1		
	3	P	136807	030	ASSEMBLY, Cable, Power Control	1	1		
	4	P	150823	292	CARTRIDGE, Fuse, 6 AMP (120 VAC Service)	2	2		
	5	P	129360	371	PLUG, Grounding, International	1	1		
	6	P	129360	373	WASHER, Color Coded, International	1	1		
	7	P	129360	375	WASHER, Lock, F/M6	1	1		
	8	P	129360	451	NUT, Hex, M6 x 1	1	1		
	9	P	93909	402	LABEL - Auxiliary (not shown)		1		
	10	P	93909	403	LABEL - Receptacle Ground (not shown)		1		
	11	P	93909	406	LABEL - Warning Fuse (AC) French (not shown)		1		
	12	P	93909	454	LABEL - Warning Fuse (AC) English (not shown)		1		
		P	93909	462	TIE WRAPS (not shown)		6		

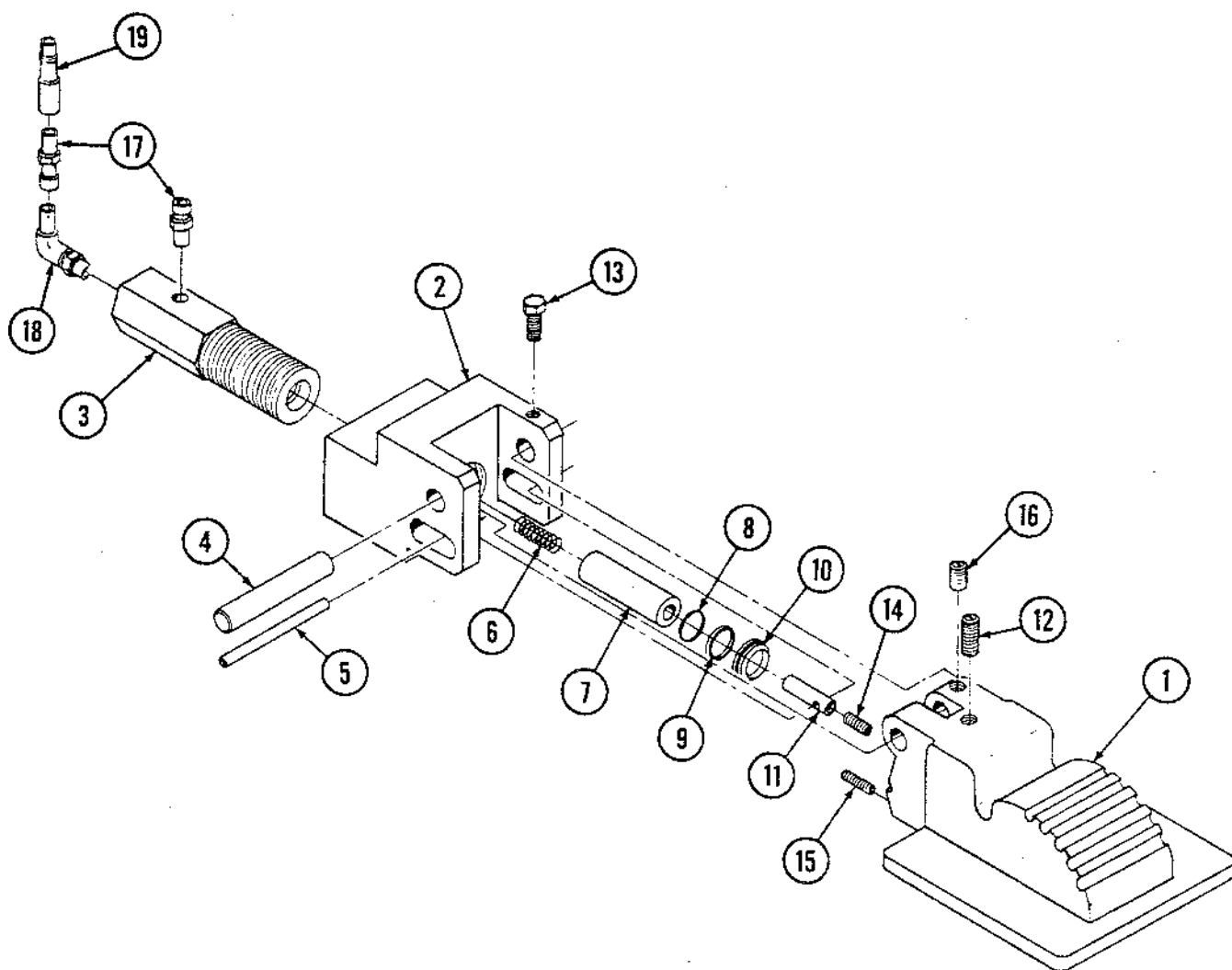


FIGURE 13-6. Foot Pump Assembly

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
13-6-	P	146653	789		FOOT PUMP ASSEMBLY (RL & SP)	X			
1	P	136807	013		PEDAL, Painted	1			
2	P	136807	008		BRACKET, Pump	1			
3	P	136807	006		BODY, Pump	1			
4	P	129360	462		ROD, Pedal	1			
5	P	129360	468		PIN, Push	1			
6	P	129360	464		SPRING, Compression	1			
7	P	136807	009		PLUNGER	1			
8	P	43489	091		O-Ring	1			
9	P	129360	463		RING, Back-up	1			
10	P	129360	479		RING, Wiper	1			
11	P	93909	373		ROD, Push	1			
12	P	80001	091		SCREW, Set, Nylock, 1/4-20 x 1/2 Long	1			
13	P	83443	001		SCREW, Hexhead, 1/4-20 x 1/2 Long, Nylon	1			
14	P	42617	045		SCREW, Set, #6-32 x 1/4 Long	1			
15	P	31276	061		SCREW, Set, #10-32 x 1/2 Long	2			
16	P	4772	045		SCREW, Set, 1/4-20 x 1/4 Long	1			
17	P	93909	512		VALVE, Check	2			
18	P	129360	335		FITTING, Hydraulic	1			
19	P	129360	569		FITTING, Hydraulic	1			

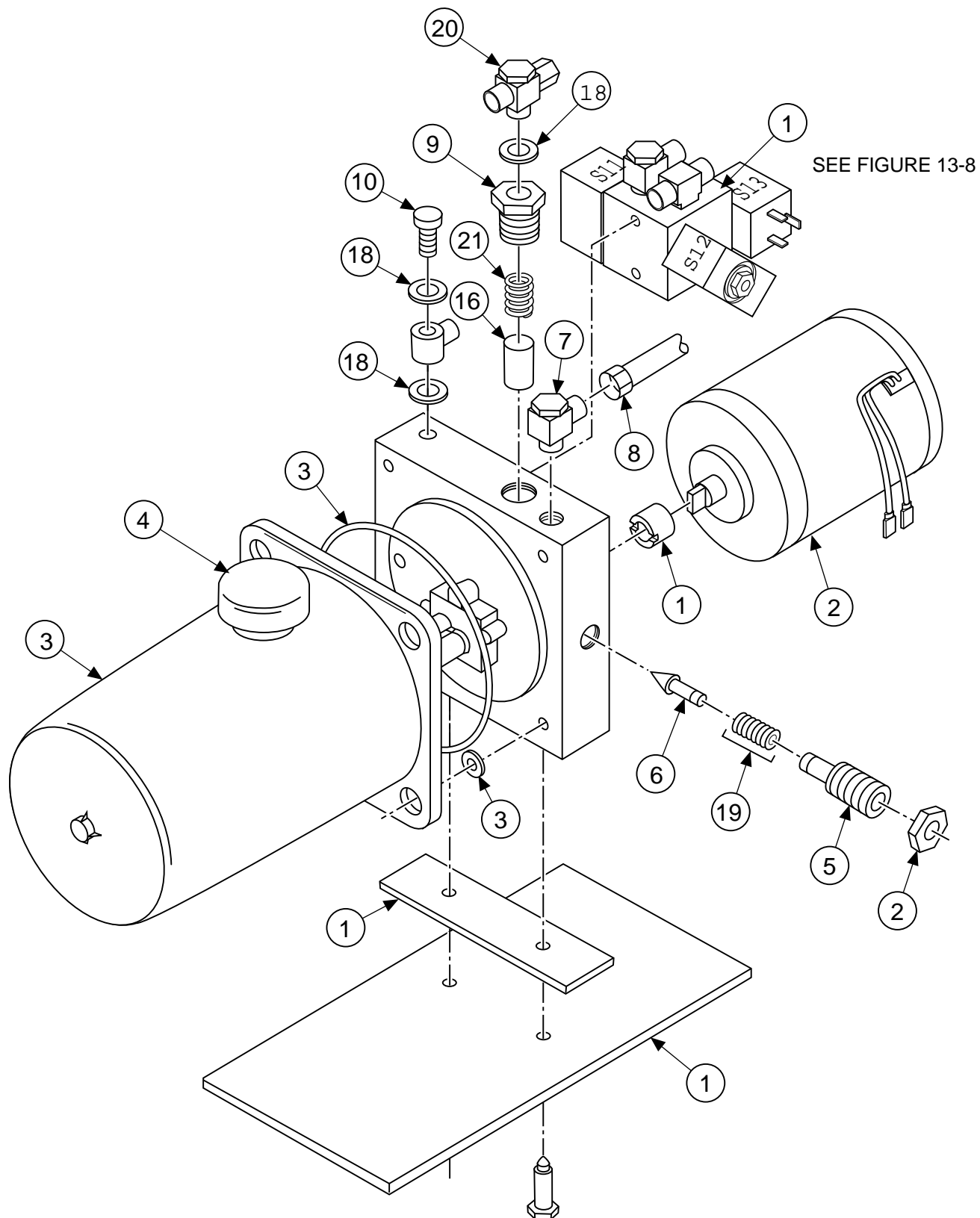


FIGURE 13-7. Motor and Pump Assembly

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
13-7-	P	141210	123		MOTOR AND PUMP ASSEMBLY - RL & SP	X			
1	P				VALVE BOX IV (see Figure 13-8)	1			
2	P	134469	299		MOTOR	1			
3	P	150823	864		RESERVOIR KIT	1			
					• O-RING SEAL, Reservoir				
					• NUT				
					• SCREW, Slotted Hex				
					• RESERVOIR				
					• WASHER				
4	P	150823	863		CAP, Breather	1			
5	P	150823	358		SCREW, Plug	1			
6	P	150823	365		CONE	1			
7	P	150823	567		FITTING, w/Filter	1			
8	P	150823	387		HOSE, 250mm	1			
9	P	150823	371		NIPPLE, Threaded	1			
10	P	150823	369		SCREW	1			
11	P	56397	256		PLATE	1			
12	P	150823	381		GASKET	1			
13					Item # Not Used				
14	P	150823	366		COUPLING	1			
15					Item # Not Used				
16	P	764326	434		FILTER	1			
17					Item # Not Used				
18	P	56397	441		USIT RING	3			
19					WASHER, Spring	8			
20					T-FITTING	1			
21					SPRING	1			
22					JAM NUT	1			

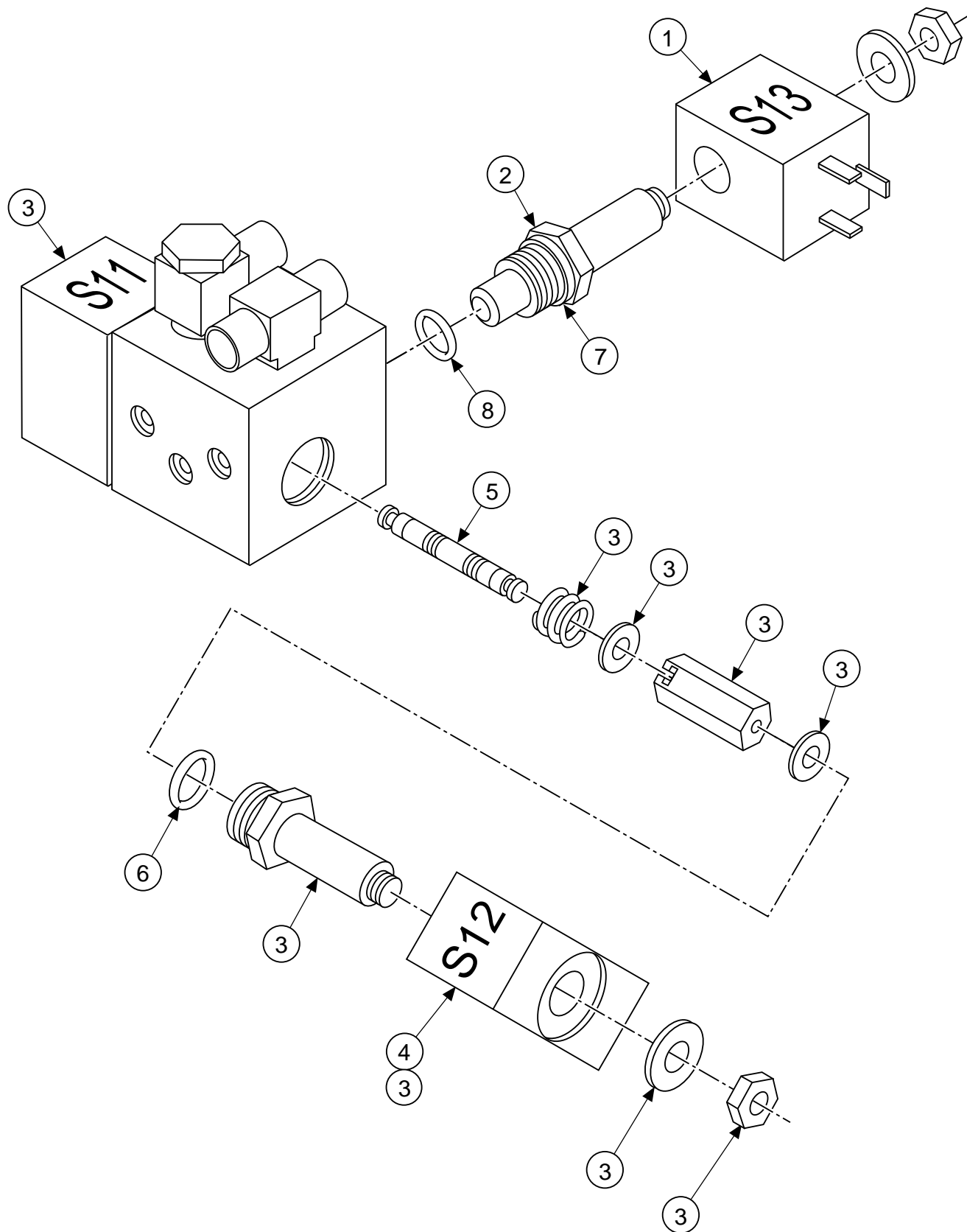


FIGURE 13-8. VALVE BOX IV

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
13-8-					VALVE BOX IV (RL & SP)	X			
1	P	150823	662		COIL, Solenoid (S13)	1			
2	P	150823	577		CARTRIDGE, Solenoid (S13)	1			
3	P	150823	380		VALVE, Solenoid (S1-S12)	2			
4	P	150823	661		COIL, Solenoid (S1-S12)	2			
5				*	MAGNETIC STEM	1			
6	P	56397	457		O-RING	2			
7	P	56397	486		O-RING	1			
8	P	56397	468		O-RING	1			
<p>* This is not a field replaceable item. If this part fails, the pump and motor assembly must be replaced, see Figure 13-7.</p>									

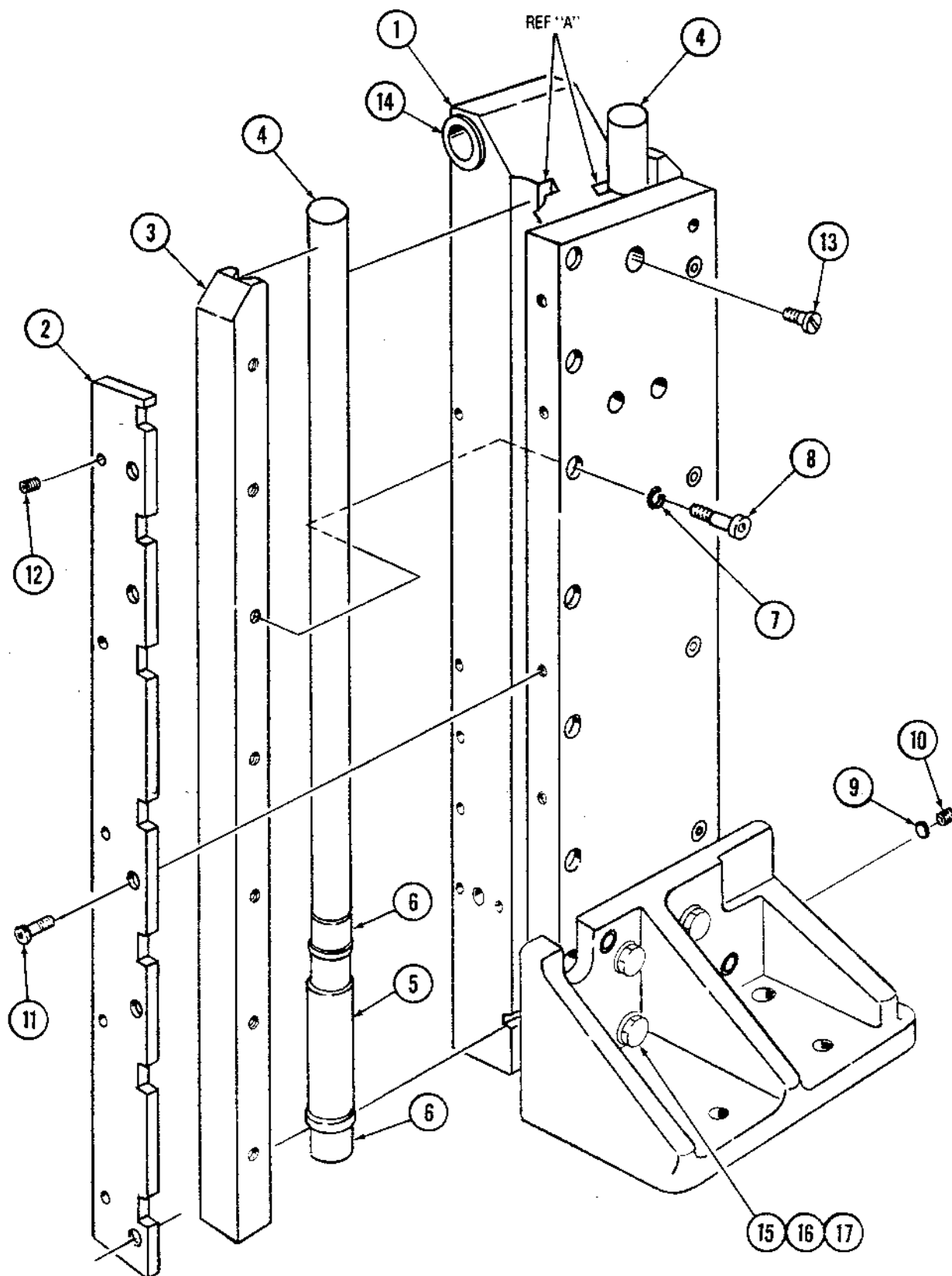


FIGURE 13-9. Column Assembly (Part 1 of 2)

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
13-9-	P	146653	426		COLUMN ASSEMBLY (Part 1 of 2)	X			
1	P	146653	429		BLOCK, Stage	1			
2	P	146653	433		SUPPORT	1			
3	P	146653	432		SUPPORT, Right Hand	1			
4	P	93908	595		GUIDE, Shaft	2			
5	P	129359	859		OILER, Column	2			
6	P	129359	671		BEARING	4			
7	P	129359	878		WASHER, Flat	7			
8	P	129359	687		SCREW, Cap, Hexhead, 1/2-20 x 1-3/4	7			
9	P	22436	091		PLUG, Nylon Rod, 5/32 Dia. x 5/32	1			
10	P	10585	041		SCREW, Set, Hex Socket, #10-32 x 1/4	1			
11	P	129352	751		SCREW, Buttonhead Socket, #10-24 x 1/2	5			
12	P	43282	091		SCREW, Set, #10-32 x 5/16	5			
13	P	129359	690		SCREW, Self-sealing, #1/4-20 x 1/4	1			
14	P	129359	882		BEARING, Olite	2			
15	P	129359	841		SCREW, Hexhead, 3/8 -24 x 1-1/2	3			
16	P	19680	041		LOCKWASHER, 3/8	3			
17	P	17263	042		WASHER, Flat, 3/8	3			

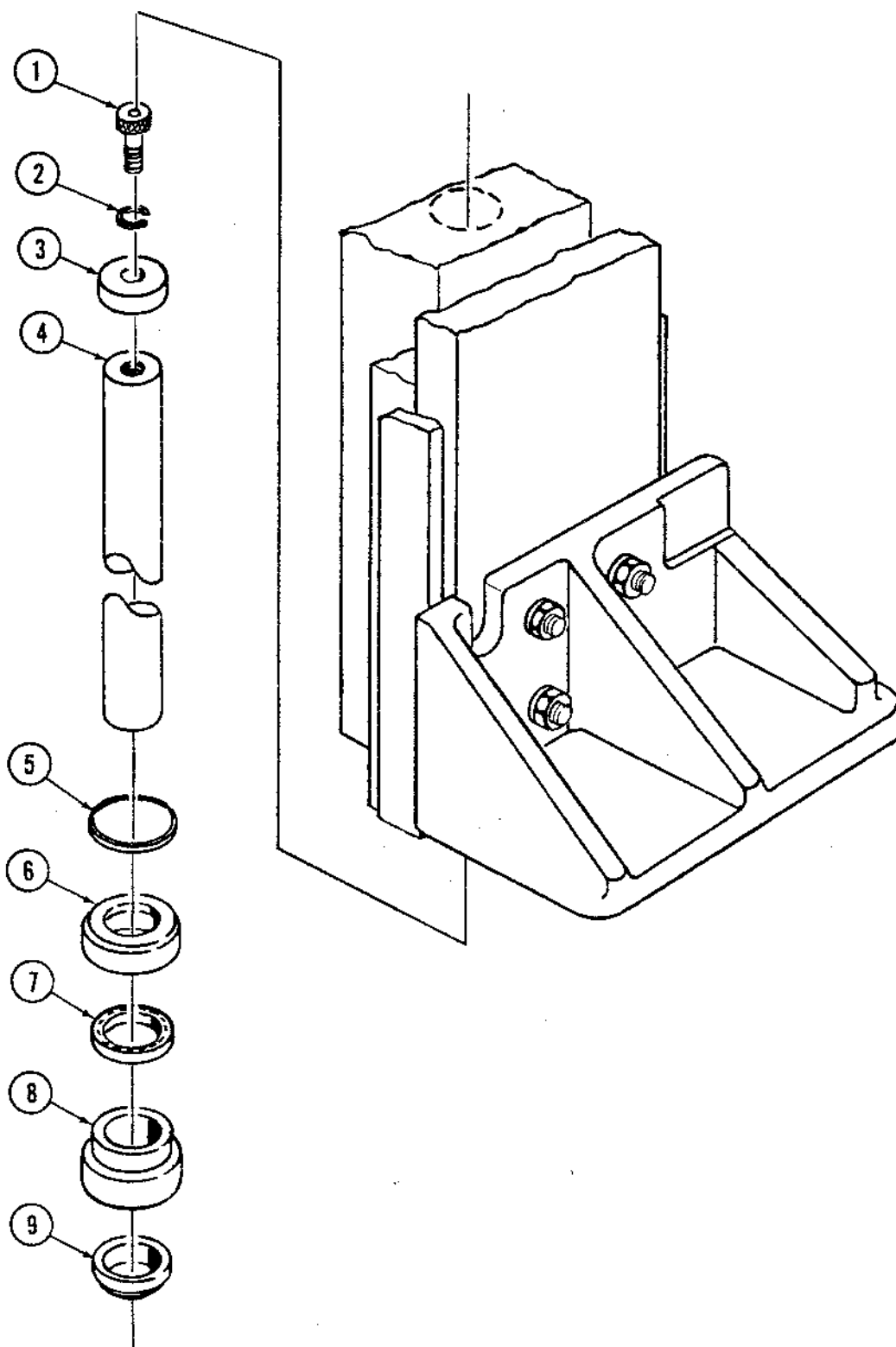


FIGURE 13-10. Column Assembly (Part 2 of 2)

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
13-10-	P	146653	426		COLUMN ASSEMBLY (Part 2 of 2)	X			
1	P	16868	041		SCREW, Cap, Sockethead, 3/8-16 x 1	1			
2	P	19680	041		LOCKWASHER, #3/8	1			
3	P	56397	238		CAP, Stop	1			
4	P	56397	237	*	RAM	1			
5	P	129359	691		O-RING	1			
6	P	93908	577		BLOCK, Bearing	1			
7	P	134469	226	*	SEAL, Reciprocating	1			
8	P	93908	591		NUT, Ram, #2-16 UNF	1			
9	P	129359	838		WIPER-SCRAPER	1			
	P	764324	884		SPANNER WRENCH (not shown)	1			
* Whenever replacing seals or ram, replace all parts with P-764324-901, Ram/Seal Kit. Spanner wrench required, P-764324-884									

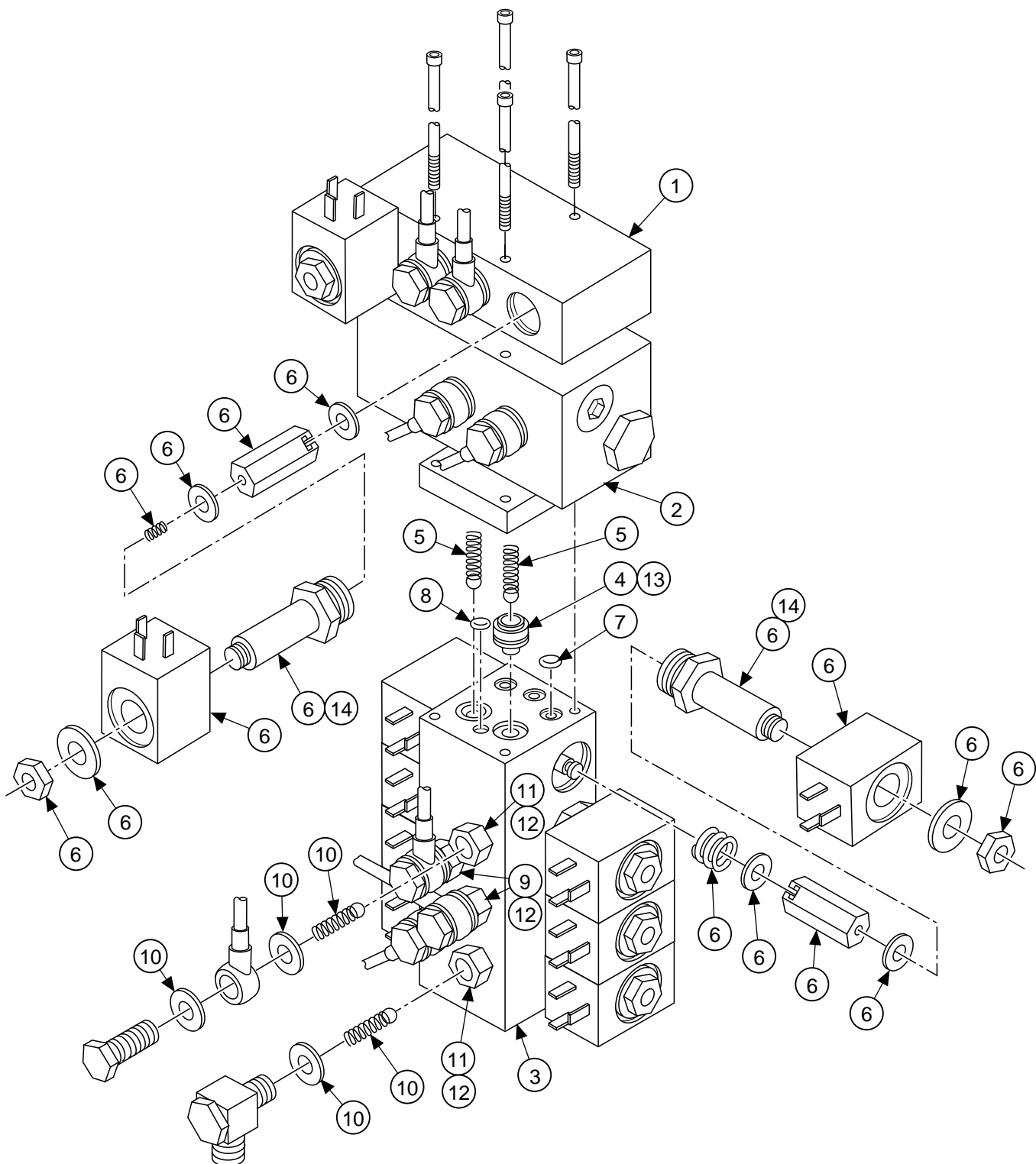


FIGURE 13-11. Control Block Assembly

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
13-11-	P	141210	122		CONTROL BLOCK ASSEMBLY (RL & SP)	X			
1	P	134469	144		VALVE BLOCK I	1			
2	P	141210	118		VALVE BLOCK II	1			
3	P	141210	119		VALVE BLOCK III	1			
4	P	150823	345	*	CARTRIDGE, Check Valve	2			
5				*	BALL & SPRING				
6	P	150823	380		KIT, Solenoid Assembly, S1 - S12	12			
7	P	56397	467		O-RING	3			
8	P	56397	471		O-RING	1			
9	P	56397	255		CARTRIDGE	3			
10	P	150823	727		KIT, Check Valve	4			
					• Spring and Ball (Check Valve)				
					• USIT Ring (Sealing Washer)				
					• CARTRIDGE, Check Valve				
11	P	56397	585	*	CARTRIDGE, Check Valve	2			
12	P	56397	469	*	O-RING	5			
13	P	56397	462	*	O-RING	4			
14	P	56397	457		O-RING	10			
* Items included in P-150823-727, Item #10.									

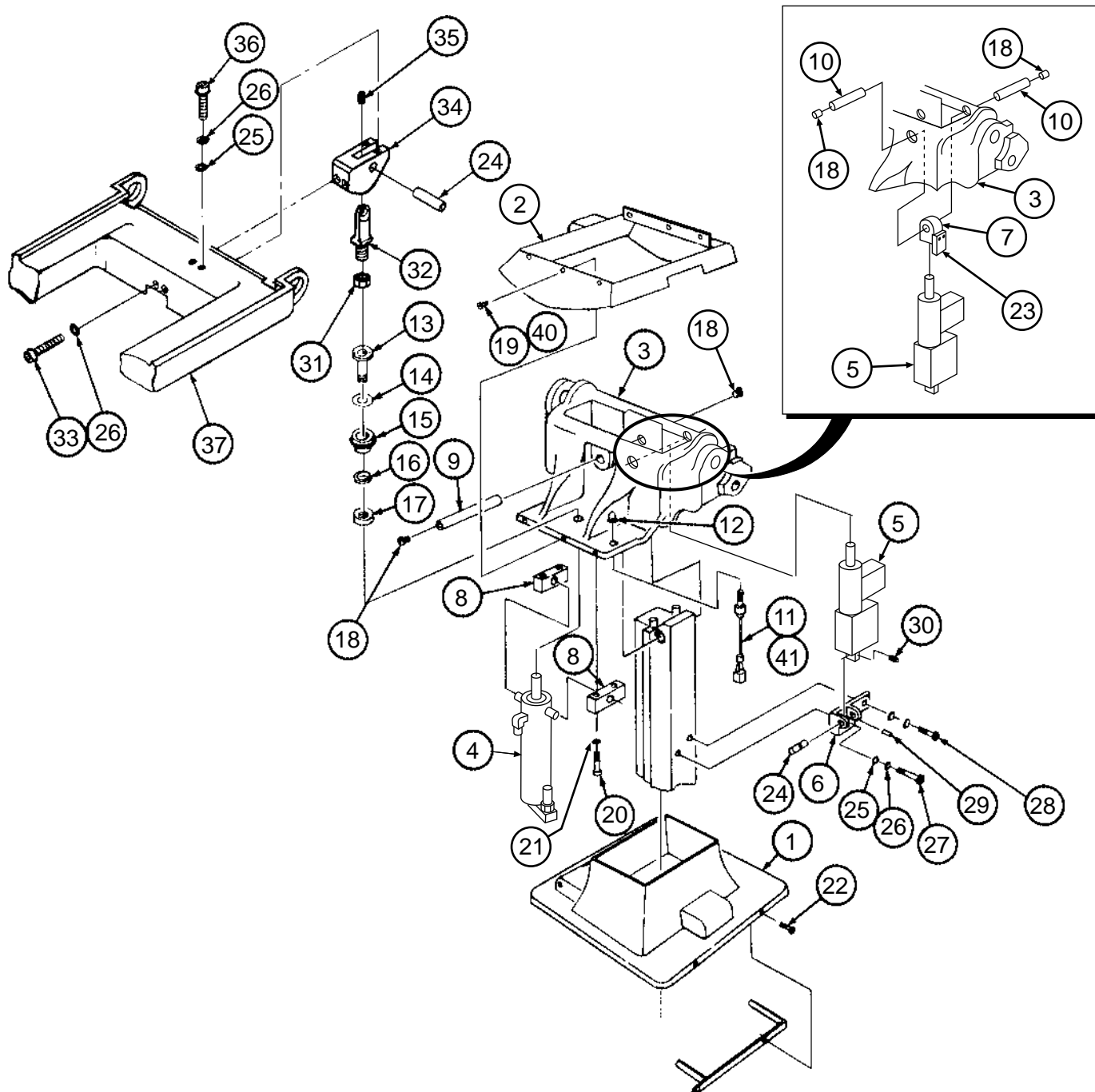


FIGURE 13-12. Table Saddle/Skirt Assembly

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
13-12-					TABLE SADDLE/SKIRT ASSEMBLY	X			
1	P	764323	283		ASSEMBLY, Shroud Cap (see Figure 13-13)	1			
2	P	141210	083		CAP, Split Skirt	1			
	P	49131	043		SCREW, Button Head #10-24 x 1/4" Long	2			
3	P	146653	435		SADDLE	1			
4	P	134469	142		CYLINDER, Hydraulic (Seat)	1			
5	P	141210	108		CYLINDER, Tilt	1			
6	P	136806	488		BRACKET, Tilt Cylinder	1			
7	P	150823	750		KNUCKLE, Tilt Cylinder	1			
8	P	93908	663		PAD, Pivot Mounting	2			
9	P	129359	680		PIN	1			
10	P	129359	850		PIN, Clevis, 3/8 Dia. x 2	2			
11	P	136807	080		ASSEMBLY, Limit Switch	1			
12	P	129360	582		BOOT, Push Button	1			
13	P	93909	411		ADAPTER	1			
14	P	150823	517		PAD, Adapter	1			
15	P	56397	399		RING	1			
16	P	56397	400		RING, Wiper	1			
17	P	56397	401		NUT	1			
18	P	129360	580		PLUG, Pipe	4			
19	P	150823	247		SCREW, Hex Socket Head \$4-40 x 3/8" St. Stl.	6			
20	P	129353	302		SCREW, Cap, Sockethead, 5/16-18 x 1-1/2	4			
21	P	19691	061		LOCKWASHER, 5/16	4			
22	P	129360	882		SCREW, Cap, Hex Sockethead, #10-24 x 3/8	4			
23	P	150823	744		LOCKING PLATE	1			
24	P	129360	175		PIN, Dowel, 3/8 x 1-1/2	2			
25	P	49134	061		WASHER, Flat, 1/4	6			
26	P	19678	045		LOCKWASHER, 1/4	6			
27	P	36684	045		SCREW, Cap, Sockethead, 1/4-28 x 1-1/4	1			
28	P	37676	061		SCREW, Cap, Sockethead, 1/4-28 x 5/8	1			
29	P	45605	061		PIN, Roll, 1/4 x 3/4	1			
30	P	36883	061		SCREW, Set (Cup Point), #10-32 x 3/8	1			
31	P	16055	045		NUT, Jam, 1/2-20	1			
32	P	129359	737		KNUCKLE, Seat Lift Cylinder	1			
33	P	91521	091		SCREW, Cap, Sockethead, 1/4-20 x 2-1/4	2			
34	P	136806	496		CLEVIS, Seat Section	1			
35	P	10585	041		SCREW, Set (Cup Point), #10-32 x 1/4	1			
36	P	11266	045		SCREW, Cap, Sockethead, 1/4-20 x 1	2			
37	P	146655	479		FRAME, Seat Section	1			
38	P	141210	147		SUPPORT, Shroud Mounting	1			
39	P	93909	795		LABEL, Warning (Electric Table Only) (not shown)	1			
40	P	150824	001		WASHER, Flat #4 x 5/16 OD	6			
41	P	150476	930		BASE, Mounting	1			

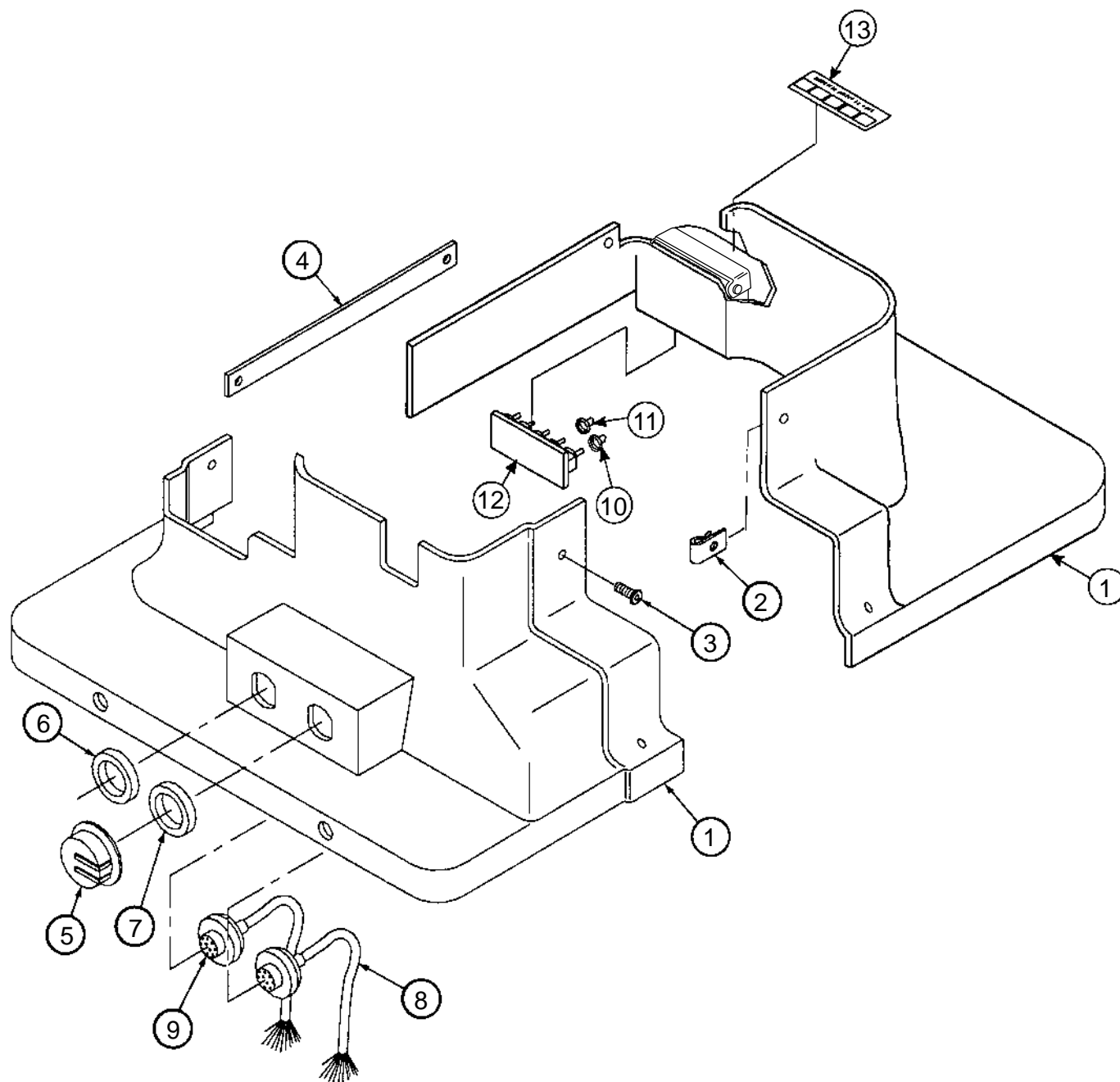


FIGURE 13-13. Shroud Cap Assembly

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
13-13-					SHROUD CAP ASSEMBLY	X			
1	P	764323	283	*	KIT, Shroud Cap Assembly (2-piece)	1			
2	P	150823	245		NUT, Speed	5			
3	P	129352	751		SCREW, Hex Socket, Button Head Cap, #10-24x1/2" Long	5			
4	P	150823	199		STRAP, Shroud	1			
5	P	129360	275		CAP, Dust	2			
6	P	129360	562		WASHER, Insulating (Grey) (Foot Control)	1			
7	P	129360	563		WASHER, Insulating (Red) (Hand Control)	1			
8	P	136806	819		ASSEMBLY, Cable, Hand Control	1			
9	P	136807	027		ASSEMBLY, Cable, Foot Control	1			
10	P	129360	352		BOOT SEAL, Toggle (Red)	1			
11	P	129360	351		BOOT SEAL, Toggle (Grey)	4			
12	P	93909	295		ASSEMBLY, Override Switch Board	1			
13	P	93909	401		DECAL, Override Switch	1			
14	P	134469	178		ASSEMBLY, Cable Override (P9 to P10)				



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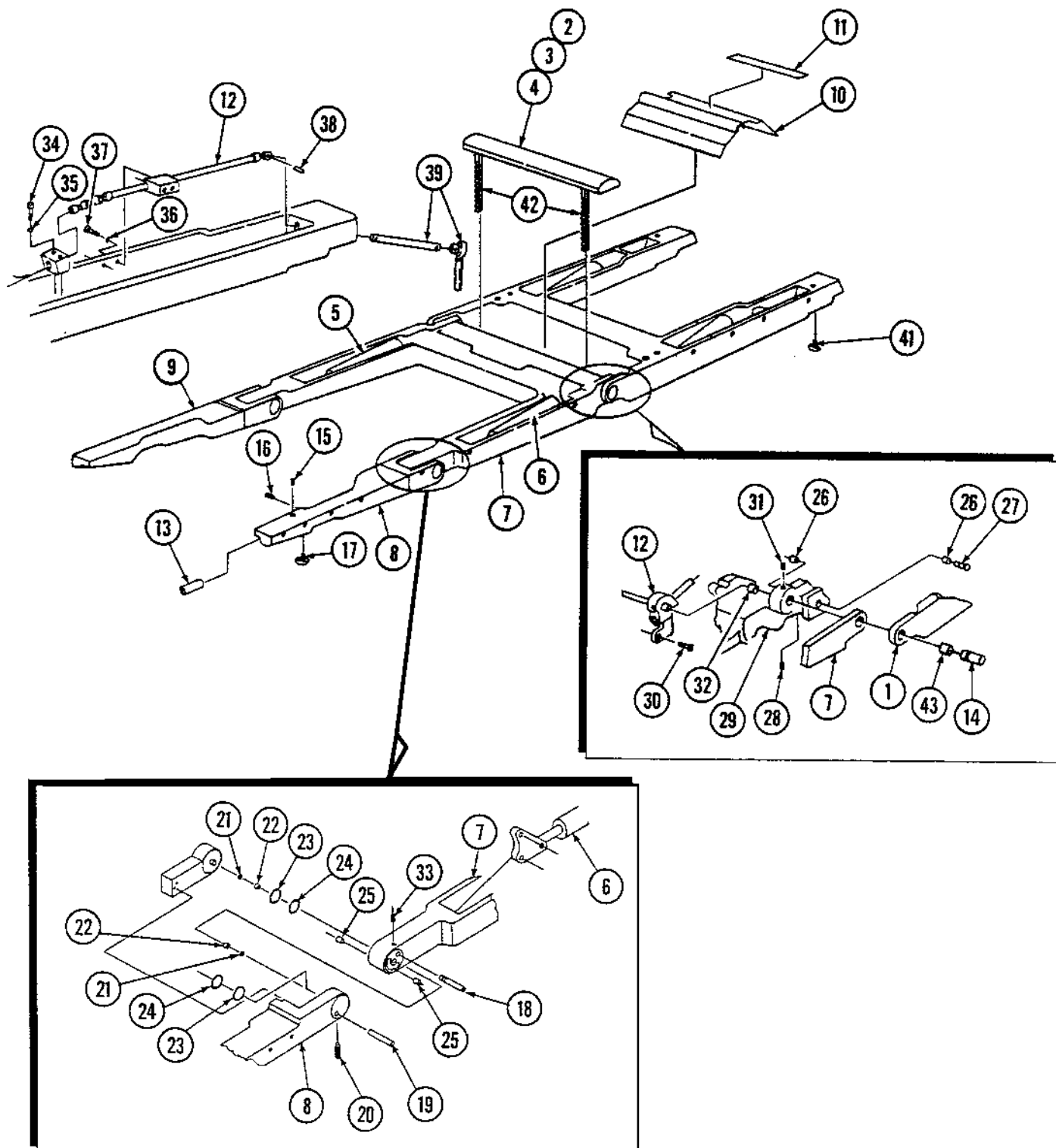


FIGURE 13-14. Tabletop and Side Rail Assembly

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
13-14-					TABLETOP AND SIDE RAIL ASSEMBLY - RL	X			
					TABLETOP AND SIDE RAIL ASSEMBLY - RL/SP		X		
1	P	146653	770		ASSEMBLY, Headrest, (see Figure 13-21)	1	1		
2	P	764324	054		TOP, Back Section	1	1		
3	P	764324	055		TOP, Leg Section	1	1		
	P	93909	539		TOP, Leg Section (Andrews Frame)	1	1		
4	P	764324	056		TOP, Seat Section	1	1		
5	P	56397	213		RAIL, Side, Back Section, Right Hand	1	1		
6	P	56397	214		RAIL, Side, Back Section, Left Hand	1	1		
7	P	56397	206		RAIL, Side, Leg Section, Left Hand	1	1		
	P	93909	536		RAIL, Side, Leg Section, Left Hand (Andrews Frame)	1	1		
8	P	56397	205		RAIL, Side, Leg Section, Right Hand	1	1		
	P	93909	537		RAIL, Side, Leg Section, Right Hand (Andrews Frame)	1	1		
9	P	56397	210		RAIL, Side, Seat Section, Left Hand	1	1		
10	P	56397	209		RAIL, Side, Seat Section, Right Hand	1	1		
11	P	129360	500		FASTENER, Hook, 16-1/2 Long	1	1		
12	P	129360	552		FASTENER, Hook, 17 Long	1	1		
	P	764325	933		• VELCRO ADHESIVE, #45				
13	P				Item # Not Used				
14	P	93909	366	*	CAP, Pivot, 1-7/8"	2	2		
15	P	129360	171	*	TAPE, Adhesive, Pivot	2	2		
16	P	129360	172	*	CAP, Pivot, 3"	2	2		
17	P	129359	894	*	TAPE, Adhesive, Pivot	2	2		
18	P	150055	001		SCREW, Truss Head, 1/4-20 x 7/8	16	16		
19	P	129357	090		INSERT	6	6		
20	P	36545	061		NUT, Hex, 5/16-18	20	20		
21	P	91147	061		LOCKWASHER, External Tooth, 5/16	20	20		
22	P	150823	276		SPACER, Side Rails	20	20		
23	P	136806	811		PAD, Leg Section, 2"	1	1		
24	P	136806	813		PAD, Head Section, 2"	1	1		
25	P	136806	815		PAD, Back/Seat Section	1	1		
26	P	75664	061		SCREWS, Machine, Countersunk (Andrews Frame) (not shown)	6	6		
27	P	93909	527		Foot Control	1	1		
28	P	134469	291		PAD, Akros Head Section (not shown)	1	1		
29	P	134469	292		PAD, Akros Back/Seat Section (not shown)	1	1		
30	P	134469	293		PAD, Akros Leg Section (not shown)	1	1		
31	P	42637	056		SCREW, Flat Head 5/16-18 x 1-1/2" Long	18	18		
32	P	150823	273		SCREW, Flat Head 5/16-18 x 2" Long	1	1		
33	P	150823	274		SCREW, Flat Head 5/16-18 x 2-1/2" Long	1	1		
34				**	HAND CONTROL, RC & RL - Pre '92 (see Figure 3-3)	1			
35	P	141210	208		HAND CONTROL, RL/SP - Post '92 (see Figure 3-3)		1		
	P	141210	154		HAND CONTROL, RC - Post '92 (see Figure 3-3)	1			
					POST '92 HAND CONTROL REPAIR KITS:				
		764325	630		• KIT, Control Housing Bracket, RL/SP		1		
		764325	631		• KIT, Control Housing Bracket, RC	1			
		764325	633		• PC BOARD Replacement	1	1		
		764325	629		• KIT, Control Cord Replacement	1	1		
Notes:									
* Items 14 & 15 would be ordered together.									
* Items 16 & 17 should be ordered together.									
**Item 34 is not a serviceable unit, order out either an RC or RL Hand Control unit.									



QUANTUM 3080 - B4 Tables

Surgical Table

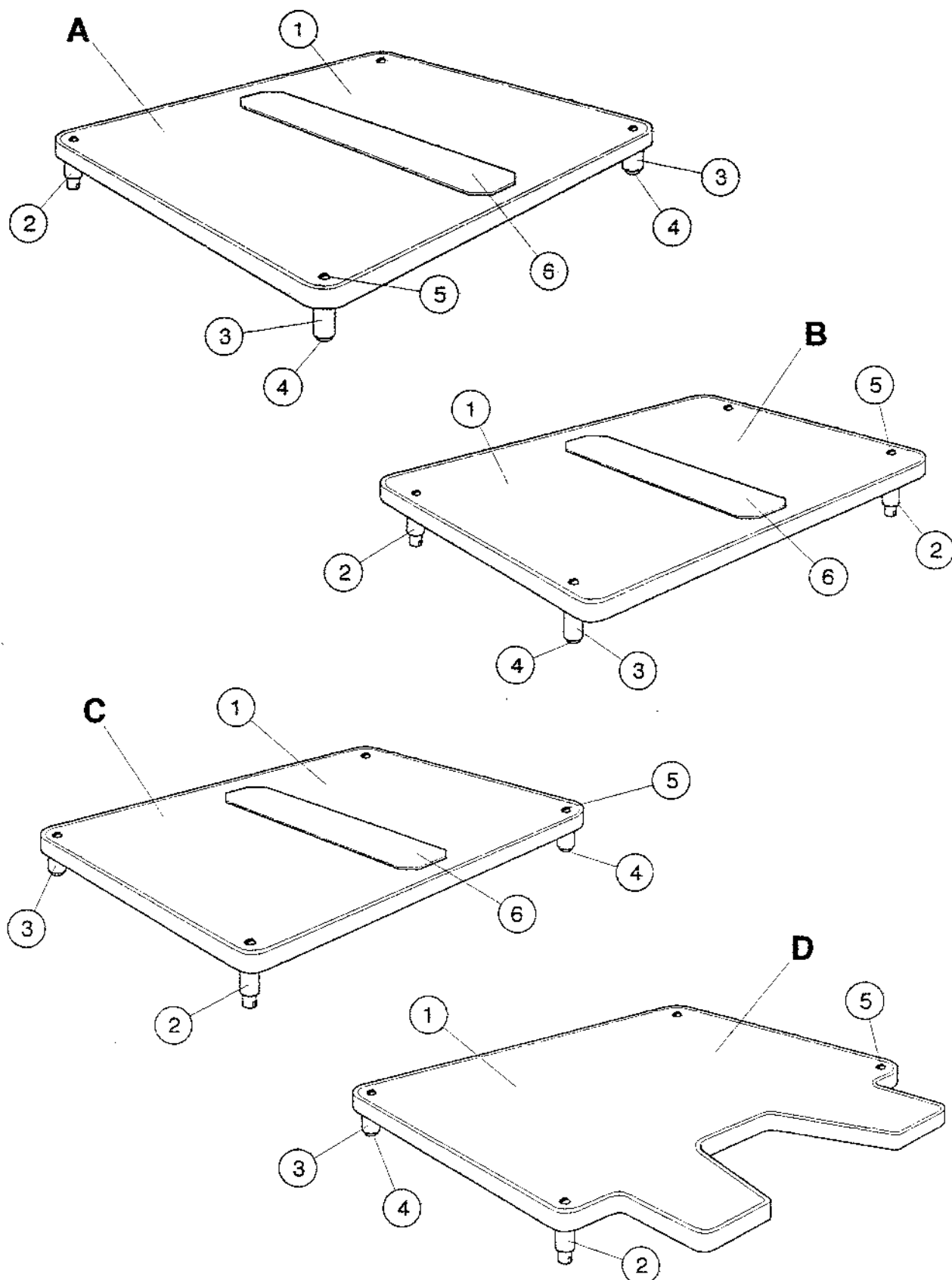


FIGURE 13-14a. Tabletop Assembly

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
13-14a-					X-RAY TOPS	X			
A	P	136807	044		X-RAY TOP ASSEMBLY, Back Section	1			
1	P	93909	289		• X-RAY TOP, Back Section	1			
2	P	93909	299		• ASSEMBLY, Spacer	2			
3	P	129360	349		• SPACER	2			
4	P	129360	481		• BUMPON	2			
5	P	150055	001		• SCREW, Truss Head	4			
6	P	129360	552	*	• FASTENER, Hook	A/R			
B	P	136807	045		X-RAY TOP ASSEMBLY, Head Section	1			
1	P	93909	286		• X-RAY TOP, Head Section	1			
2	P	93909	299		• SPACER ASSEMBLY	2			
3	P	129360	349		• SPACER	2			
4	P	129360	481		• BUMPON	2			
5	P	150055	001		• SCREW, Truss Head	4			
6	P	129360	551	*	• FASTENER, Hook	A/R			
C	P	136807	042		X-RAY TOP ASSEMBLY, Leg Section	1			
1	P	93909	287		• X-RAY TOP, Leg Section	1			
2	P	93909	299		• SPACER ASSEMBLY	2			
3	P	129360	349		• SPACER	2			
4	P	129360	481		• BUMPON	2			
5	P	150055	001		• SCREW, Truss Head	4			
6	P	129360	552	*	• FASTENER, Hook	A/R			
D	P	136807	043		X-RAY TOP ASSEMBLY, Seat Section	1			
1	P	93909	288		• X-RAY TOP, Seat Section	1			
2	P	93909	299		• SPACER ASSEMBLY	2			
3	P	129360	349		• SPACER	2			
4	P	129360	481		• BUMPON	2			
5	P	150055	001		• SCREW, Truss Head	4			
* Use Velcro Adhesive #45 (P-764325-933)									

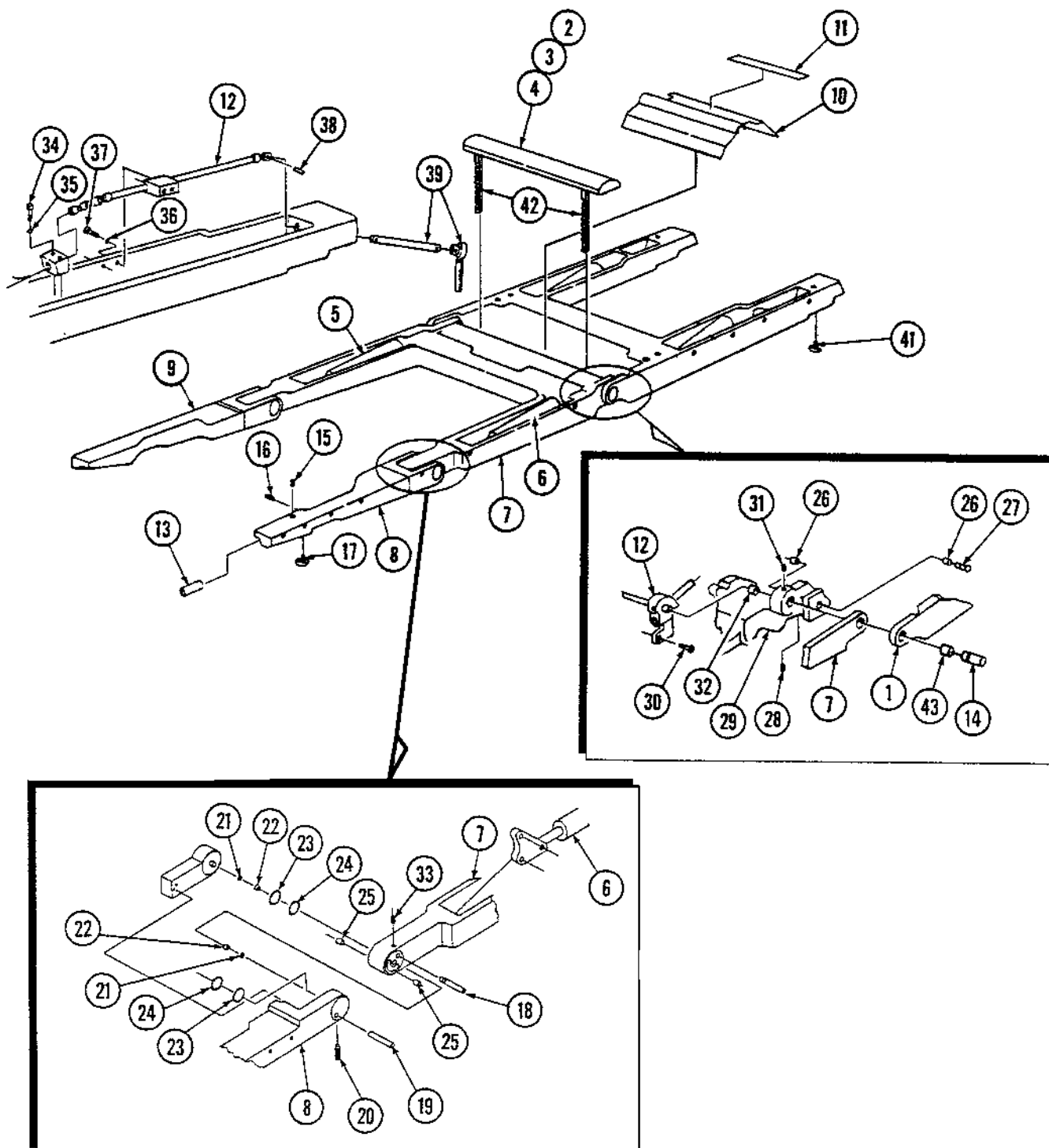


FIGURE 13-15. Tabletop Assembly

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
13-15-					TABLETOP ASSEMBLY - SP	X			
					TABLETOP ASSEMBLY - RL		X		
1					ASSEMBLY, Back Section (see Figure 13-16)	1	1		
2	P	136807	076		ASSEMBLY, Kidney Bridge and Rack	1	1		
3	P	3952	041		SCREW, Roundhead, Machine, 1/4-20 x 1/2 Long	2	1		
4	P	3999	041		SCREW, Roundhead, Machine, 1/4-20 x 5/8 Long	2	1		
5	P	141210	146		CYLINDER ASSEMBLY, Leg, Right-Hand	1	1		
6	P	141210	145		CYLINDER ASSEMBLY, Leg, Left-Hand	1	1		
7					ASSEMBLY, Seat Section (see Figure 13-19)	1	1		
8	P	146653	785		ASSEMBLY, Leg Section, Left Side (see Figure 13-20)	1	1		
9	P	146653	786		ASSEMBLY, Leg Section, Right Side (see Figure 13-20)	1	1		
10	P	136807	118		COVER, Saddle	1	1		
11	P	129360	687		FASTENER, Hook, 1 x 7	1	1		
12	P	146653	926		ASSEMBLY, Kidney Bridge Shaft (see Figure 13-17)	1	1		
13	P	93909	431		BEARING, Mounting	2	2		
14	P	129359	689		PIN, Pivot	2	2		
15	P	90348	061		PIN, Roll, 1/8 x 3/8	2	2		
16	P	35139	061		SCREW, Set (Cup Point), #6-32 x 1/4	2	2		
17	P	77559	056		ASSEMBLY, Knob	2	2		
18	P	129359	746		PIN, 5/8 Diameter x 2-1/2	2	2		
19	P	129359	738		PIN, 1/2 Diameter x 3	2	2		
20	P	150763	001		SCREW, Set (Half Dog), #8-32 x 1/4	4	4		
21	P	129359	748		WASHER, Thrust, 1 OD x 9/16 ID x 1/16 THK	4	4		
22	P	129359	750		BEARING, Sleeve	4	4		
23	P	129360	162		ASSEMBLY, Hinge Seal	4	4		
24	P	129360	161		BEARING, Hinge Seal	4	4		
25	P	129359	740		SPACER, Pin	4	4		
26	P	93908	827		BEARING, Nylon Flange	4	4		
27	P	129359	693		PIN	2	2		
28	P	15263	091		SCREW, Set (Cone Point), 1/4-20 x 1/4	2	2		
29	P	146653	435		SADDLE	1	1		
30	P	74117	061		SCREW, Cap, Sockethead, 1/4-20 x 3/8	2	2		
31	P	129360	581		SCREW, Set (Cup Point), 1/4-20 x 1/2	2	2		
32	P	129360	579		BEARING	2	2		
33	P	10585	041		SCREW, Set (Cup Point), #10-32 x 1/4	5	5		
34	P	129360	694		SCREW, Cap, Sockethead, #8-32 x 1-1/2	2	2		
35	P	19690	061		LOCKWASHER, #8	2	2		
36	P	46115	091		LOCKWASHER, #10	2	2		
37	P	9298	041		SCREW, Roundhead, #10-32 x 1/2	2	2		
38	P	41511	061		PIN, Groove, 5/32 x 5/8	1	1		
39	P	93909	474		ASSEMBLY, Kidney Bridge Handle (see Figure 13-18)	1	1		
40	P	129360	511		INSERT, Helicoil, 5/16-18	2	2		
41	P	93909	192		KNOB, 5/16-18	2	2		
42	P	129359	653		RACK	2	2		
43	P	93908	828		BEARING	4	4		

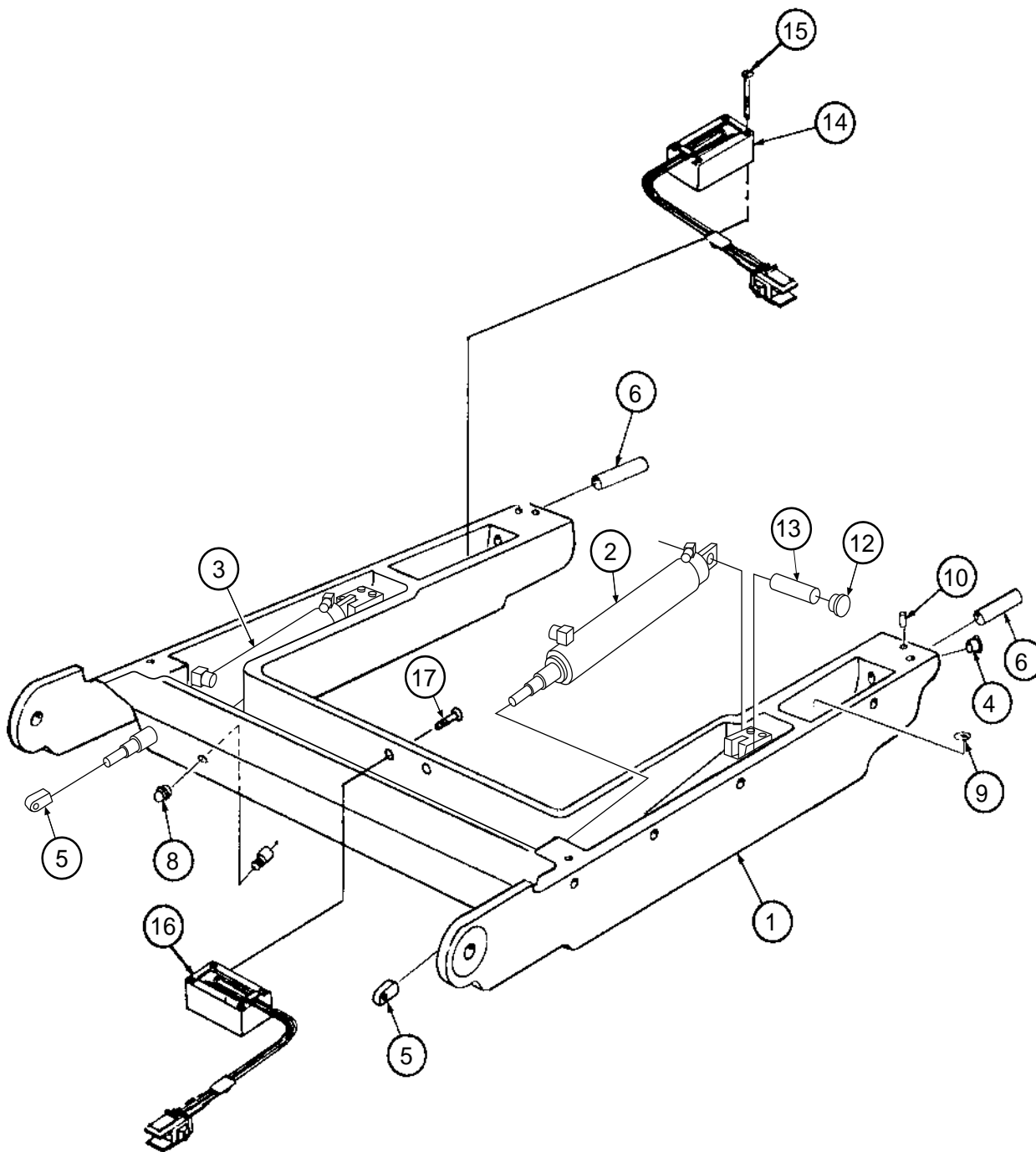


FIGURE 13-16. Back Section Assembly

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
13-16-					BACK SECTION ASSEMBLY - SP	X			
					BACK SECTION ASSEMBLY - RL		X		
	1	P	146655	478	BACK SECTION	1	1		
	2	P	134469	140	CYLINDER, Hydraulic (Back Section, Left-Hand)	1	1		
	3	P	134469	145	CYLINDER, Hydraulic (Back Section, Right-Hand)	1	1		
	4	P	129359	853	BEARING, Olite	1	1		
	5	P	129359	652	CLEVIS, Cylinder	2	2		
	6	P	93909	431	BEARING, Headrest Mounting	4	4		
	7				Item # Not Used				
	8	P	129360	582	BOOT, Limit Switch	2	2		
	9	P	129360	483	STICKER, Neutral Ground	1	1		
	10	P	90348	061	PIN, Roll, 1/8 x 3/8	4	4		
	12	P	150823	198	PLUG, Button	2	2		
	13	P	150823	203	PIN, Dowell 3/8" Dia. x 2-1/2" Long	2	2		
	14	P	136807	727	ASSEMBLY, Mercury Switch (P-34)	1	1		
	15	P	118407	045	SCREW, Pan Head #6-32 x 1" Long	2	2		
	16	P	136807	728	ASSEMBLY, Mercury Switch (P-33)	1	1		
	17	P	81681	003	SCREW, Round Head #6-32 x 1/4" Long	2	2		

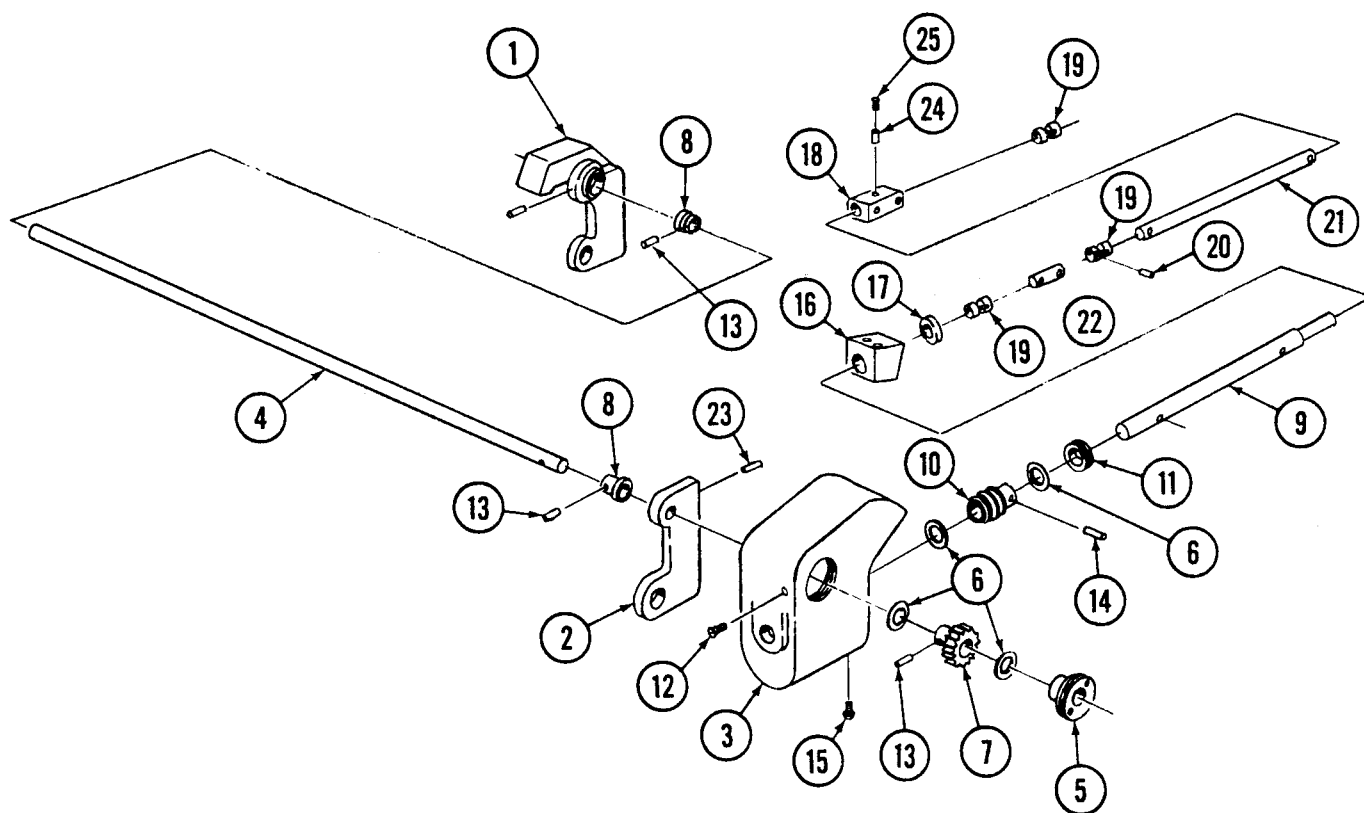


FIGURE 13-17. Kidney Bridge Shaft Assembly

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
13-17-	P	146653	926		KIDNEY BRIDGE SHAFT ASSEMBLY	X			
1	P	136806	486		STABILIZER, Right Hand	1			
2	P	136806	487		STABILIZER, Left Hand	1			
3	P	136806	460		BOX, Gear	1			
4	P	93908	584		SHAFT, Cross, 1/2 Dia. x 15-5/8	1			
5	P	16285	042		BEARING	1			
6	P	50713	091		BEARING, Thrust	4			
7	P	16247	091		GEAR, Worm	1			
8	P	15220	045		GEAR, Spur	2			
9	P	129359	684		SHAFT, Worm End	1			
10	P	16234	091		WORM	1			
11	P	16186	042		NUT, Adjusting	1			
12	P	90623	045		SCREW, Machine, Roundhead, #8-32 x 5/16	1			
13	P	24700	061		PIN, Grooved, 3/16 x 1	3			
14	P	30092	061		PIN, Grooved, 5/32 x 3/4	1			
15	P	3967	041		SCREW, Machine, Roundhead, #8-32 x 1/4	1			
16	P	93908	640		BLOCK, Kidney Bridge Linkage	1			
17	P	129359	702		BEARING, Spherical	1			
18	P	129359	718		BLOCK, Support	1			
19	P	20200	045		JOINT, Universal	3			
20	P	41511	061		PIN, Groove, 5/32 x 5/8	5			
21	P	129359	686		SHAFT, 3/8 Dia. x 6-1/4	1			
22	P	129359	720		SHAFT, 3/8 Dia. x 1-3/8	1			
23	P	45591	061		PIN, Roll, .103 Dia. x 1/2	2			
24	P	129360	230		BUMPER, Rubber	1			
25	P	4772	045		SCREW, Set, Hex Socket, 1/4-20 x 1/4	1			
26	P	93909	733		LABEL, Kidney Bridge Control	1			

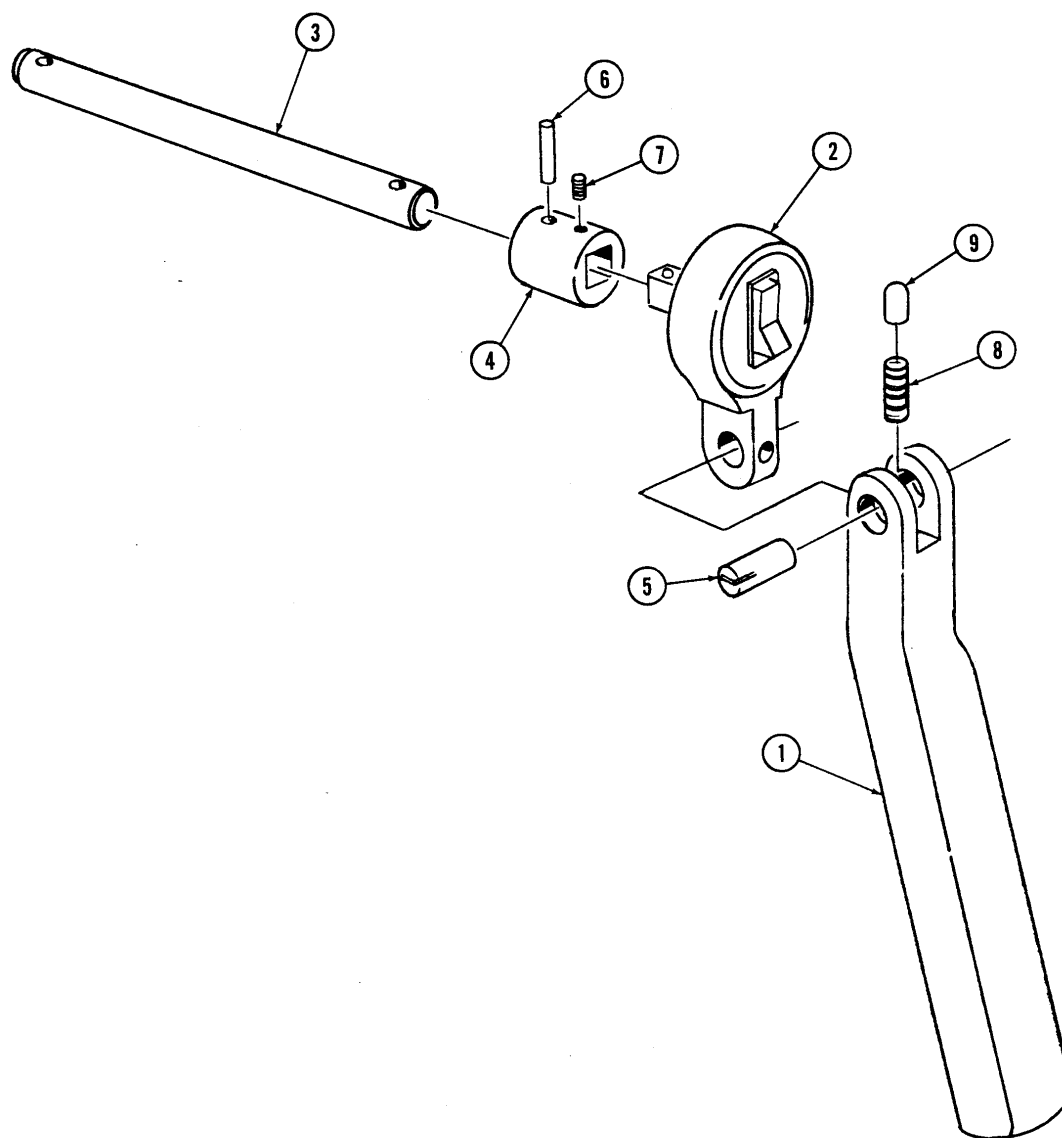


FIGURE 13-18. Kidney Bridge Handle Assembly

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
13-18-	P	93909	474		KIDNEY BRIDGE HANDLE ASSEMBLY	X			
1	P	136806	457		HANDLE, Kidney Bridge	1			
2	P	93908	662		RATCHET	1			
3	P	129359	685		SHAFT	1			
4	P	129359	681		SOCKET, Drive	1			
5	P	129360	266		PIN, Grooved	1			
6	P	41511	061		PIN, Grooved	1			
7	P	52004	061		SCREW, Set, #10-32 x 1/4	1			
8	P	129360	265		SPRING, Compression	1			
9	P	129360	264		PLUNGER	1			

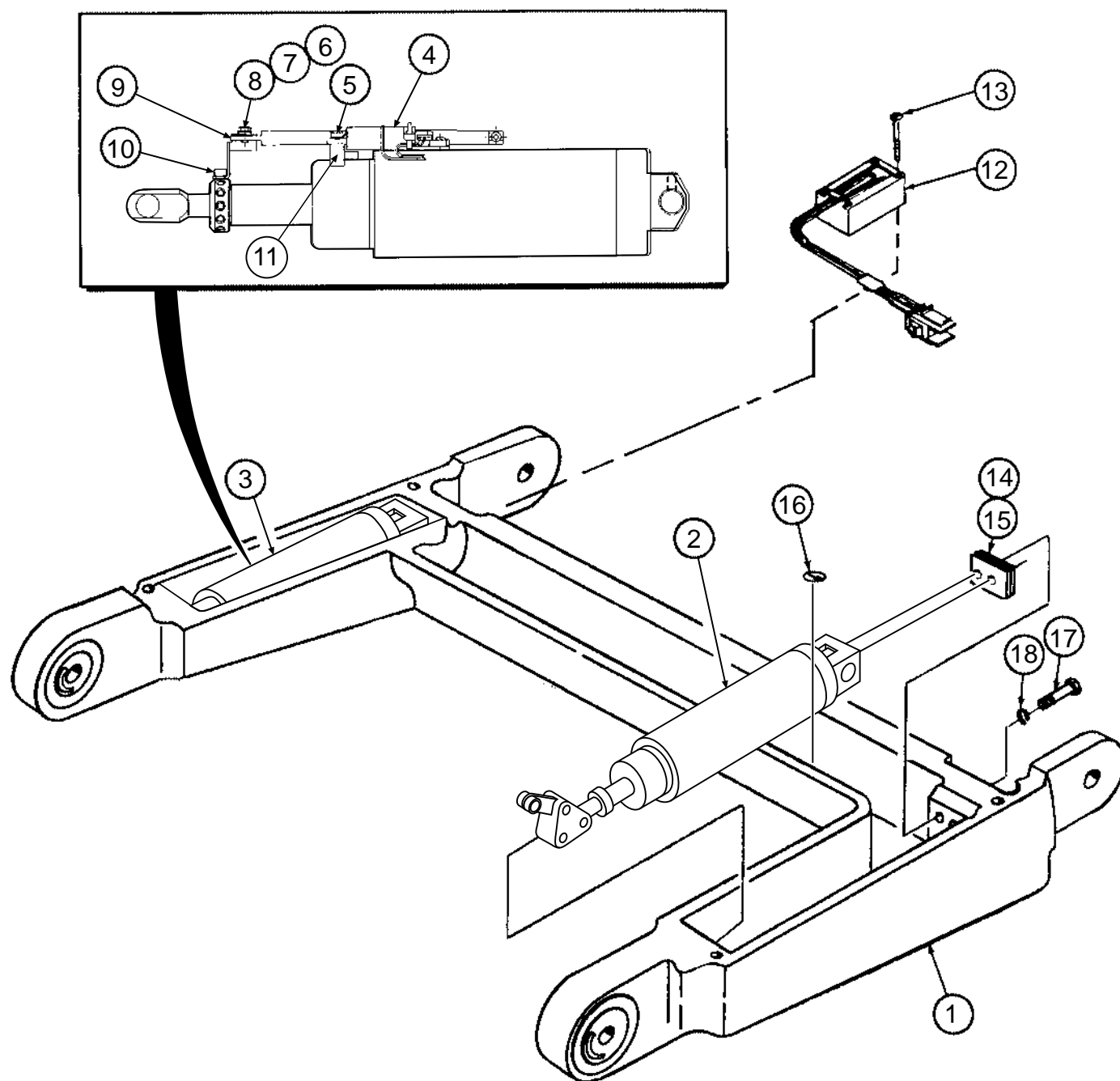


FIGURE 13-19. Seat Section Assembly

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
13-19-					SEAT SECTION ASSEMBLY - RL	X			
					SEAT SECTION ASSEMBLY - SP		X		
	1	P	146655	479	FRAME, Seat Section	1	1		
	2	P	141210	145	LEG CYLINDER, L.H. Assembly	1	1		
	3	P	141210	146	LEG CYLINDER, R.H. Assembly	1	1		
	4	P	136807	731	SELF LEVEL ASSEMBLY	1	1		
	5	P	129361	758	SCREW, Soc. Hd. Shoulder, #4-40 x 3/16" LG	1	1		
	6	P	84116	002	LOCKWASHER, #6, Internal Tooth	1	1		
	7	P	84114	002	WASHER, Flat, #6	1	1		
	8	P	129361	760	SCREW, Hex Hd., #6-32 x 1/4" LG	1	1		
	9	P	56397	374	BRACKET, Support Cam	1	1		
	10	P	129361	761	SCREW, Soc. Hd., #8-32 x 1/4" LG	1	1		
	11	P	150823	437	SPACER	1	1		
	12	P	136807	726	MERCURY SWITCH ASSEMBLY (P-35)	1	1		
	13	P	118407	045	SCREW, Pan Hd., #6-32 x 1" LG	4	4		
	14	P	129359	836	SHIM, 010 THK	A/R	A/R		
	15	P	129360	498	SHIM, 063 THK	A/R	A/R		
	16	P	129360	483	STICKER, Natural Ground	2	2		
	17	P	12176	041	SCREW, Hex Hd., 1/4-20 x 3/4" LG	4	4		
	18	P	150620	001	WASHER, Flat, 1/4"	4	4		

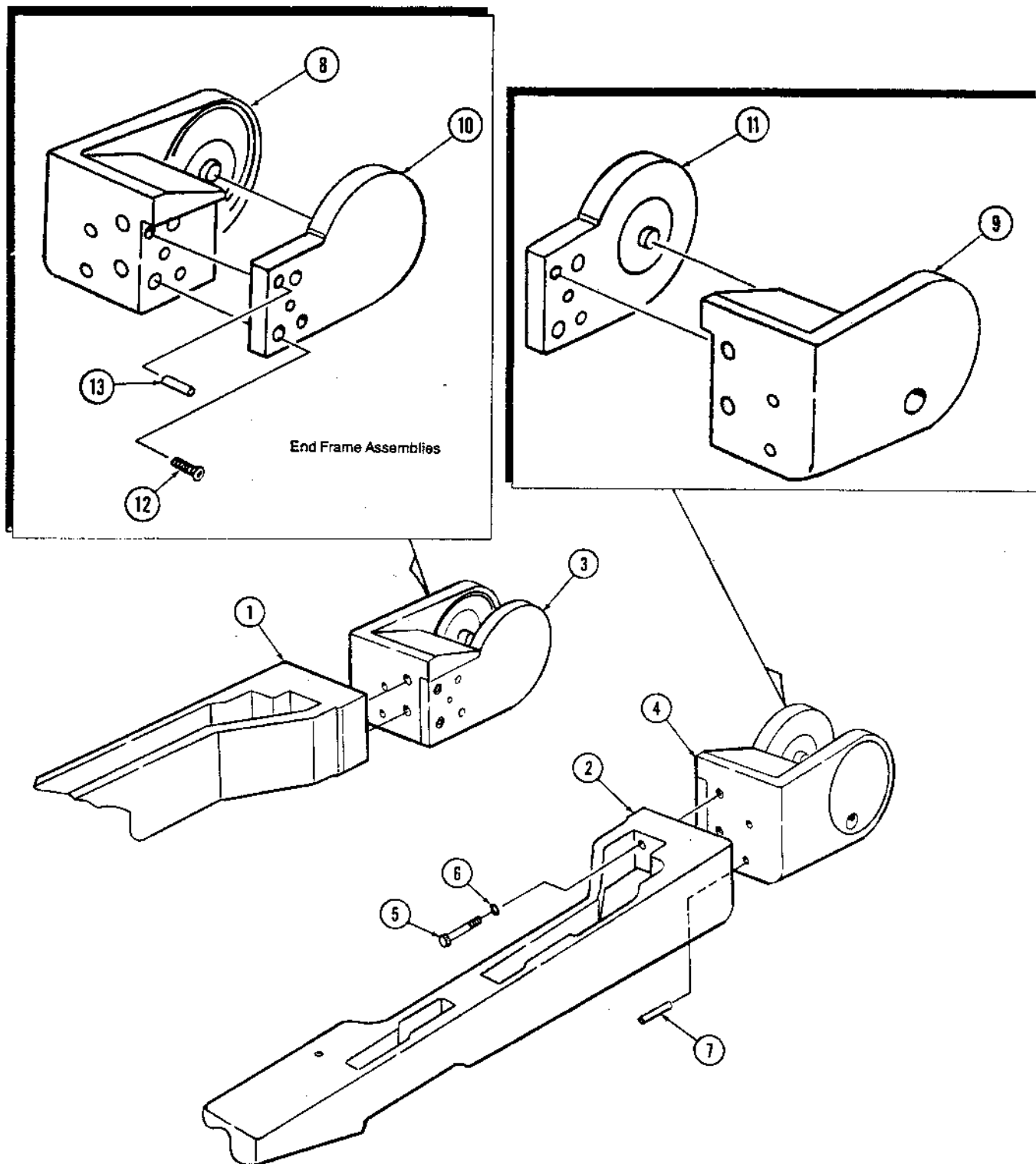


FIGURE 13-20. Leg Section Assemblies

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
13-20-	P	146653	785		LEG SECTION ASSEMBLY, Left Side	X			
	P	146653	786		LEG SECTION ASSEMBLY, Right Side		X		
1	P	146653	440		FRAME, Right Side		1		
2	P	146653	438		FRAME, Left Side	1			
3	P	146653	446		ASSEMBLY, End Frame, Right Side (see Items #8-13)		1		
4	P	146653	447		ASSEMBLY, End Frame, Left Side (see Items #8-13)	1			
5	P	44746	045		SCREW, Cap, 3/8-16 x 1-1/4	2	2		
6	P	19680	041		WASHER, Helical Spring, 3/8	2	2		
7	P	129359	864		PIN, Spirol, 1/4 Dia. x 1-1/2	2	2		
8	P	146653	451		• FRAME, End, Outer Right Side		1		
9	P	146653	450		• FRAME, End, Outer Left Side	1			
10	P	146653	448		• FRAME, End, Inner Right Side		1		
11	P	146653	449		• FRAME, End, Inner Left Side	1			
12	P	150823	064		• SCREW, Socket Flathead, 1/4-20 x 1	2	2		
13	P	15294	091		• PIN, Dowel, 5/16 Diameter x 1	2	2		

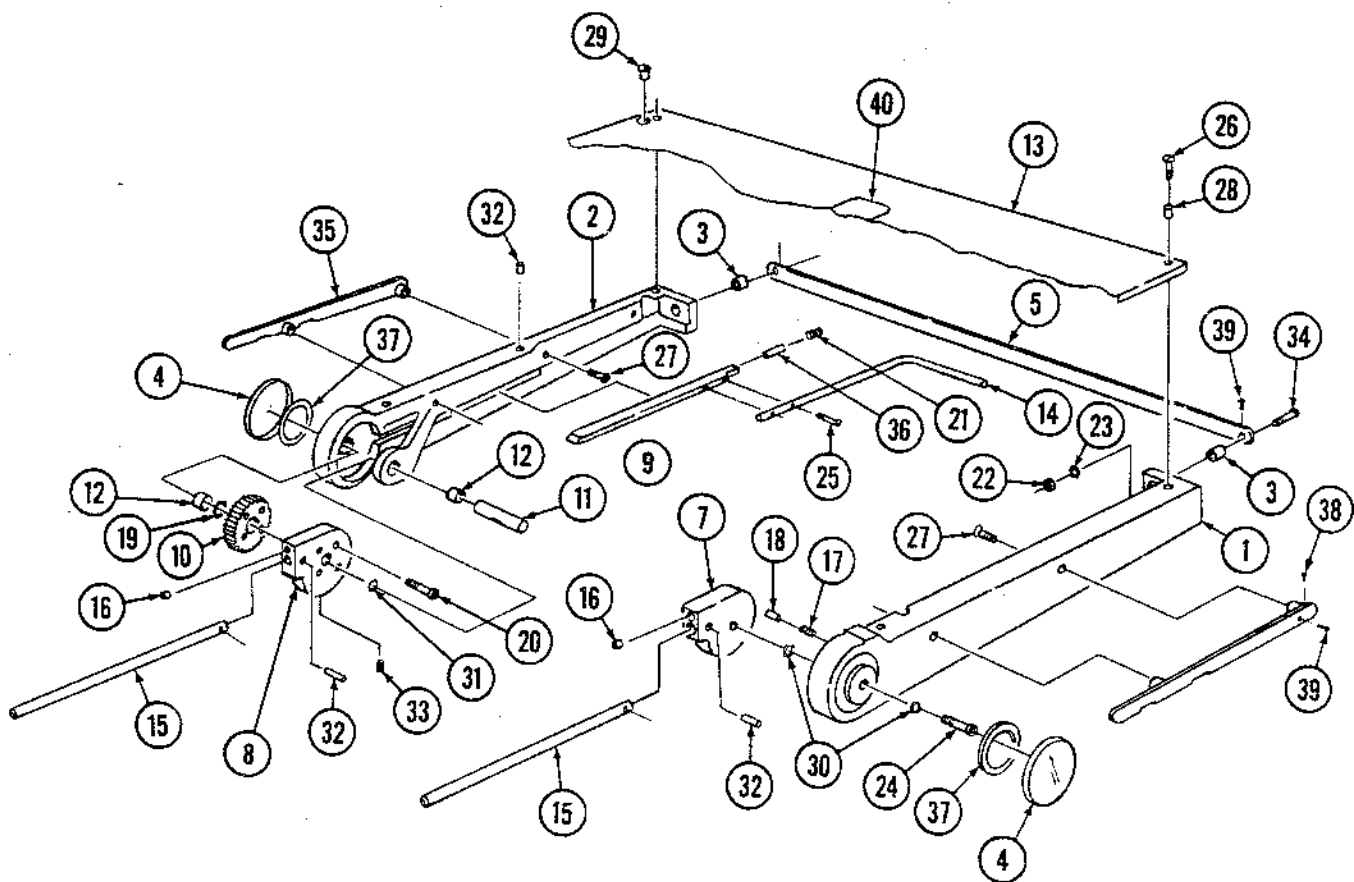


FIGURE 13-21. Headrest Assembly

FIG. & INDEX NO.	PART NUMBER	S V C	DESCRIPTION	UNITS PER ASSEMBLY
13-21-	P 146653	770	HEADREST ASSEMBLY	X
1	P 146653	766	FRAME, Side, Left Hand	
2	P 146653	768	FRAME, Side, Right Hand	1
3	P 15171	042	SPACER	2
4	P 93909	366	CAP, Pivot	2
5	P 93909	204	RAIL, End	1
6	P 93909	372	ASSEMBLY, Side Rail, Left Hand	1
7	P 136806	499	BLOCK, Support, Left Hand	1
8	P 136806	500	BLOCK, Support, Right Hand	1
9	P 136806	494	PAWL	1
10	P 93909	191	RACHET	1
11	P 129360	253	SHAFT	1
12	P 129360	249	BEARING, Sleeve	1
13	P 93908	590	TOP, Headrest	1
14	P 93909	196	HANDLE	1
15	P 93909	190	SHAFT	2
16	P 129360	230	BUMPER, Rubber	2
17	P 129360	228	SPRING, Compression	4
18	P 129360	229	STOP, Nylon	4
19	P 129360	255	WASHER, Spring	1
20	P 129360	258	BOLT, Shoulder, #8-32 x 1	4
21	P 129360	353	SPRING, Compression	1
22	P 27184	045	NUT, Hug Lock, 5/16	2
23	P 19679	091	LOCKWASHER, 5/16 x .062 Thick	2
24	P 83755	001	BOLT, Shoulder, 5/16-18 x 3/4	4
25	P 129360	350	SCREW, Flat Head Hex, #8-32 x 7/8	2
26	P 150055	001	SCREW, Truss Head, 1/4-20 x 7/8	4
27	P 150823	001	SCREW, Flat Head Hex, 1/4-20 x 5/8	4
28			Item # Not Used	
29	P 129357	090	INSERT, Top	2
30	P 10456	091	WASHER, Flat, 11/16 OD x .390 ID	A/R
31	P 129360	256	WASHER, Thrust	1
32	P 36565	061	PIN, Roll, 1/8 x 1	3
33	P 36883	061	SCREW, Set Hex, #10-32 x 3/8	1
34	P 42637	056	SCREW, Flat Head Socket, 5/16-18 x 1-1/2	2
35	P 93909	371	ASSEMBLY, Side Rail, Right Hand	1
36	P 129180	173	PIN, Roll	1
37	P 129359	894	TAPE, Adhesive	2
38	P 9645	061	SCREW, Drive, #4 x 3/16	6
39	P 83737	001	SCREW, Drive, #6	2
40	P 129360	551	HOOK, Fastener, 2 x 7-3/4 (see Note)	1

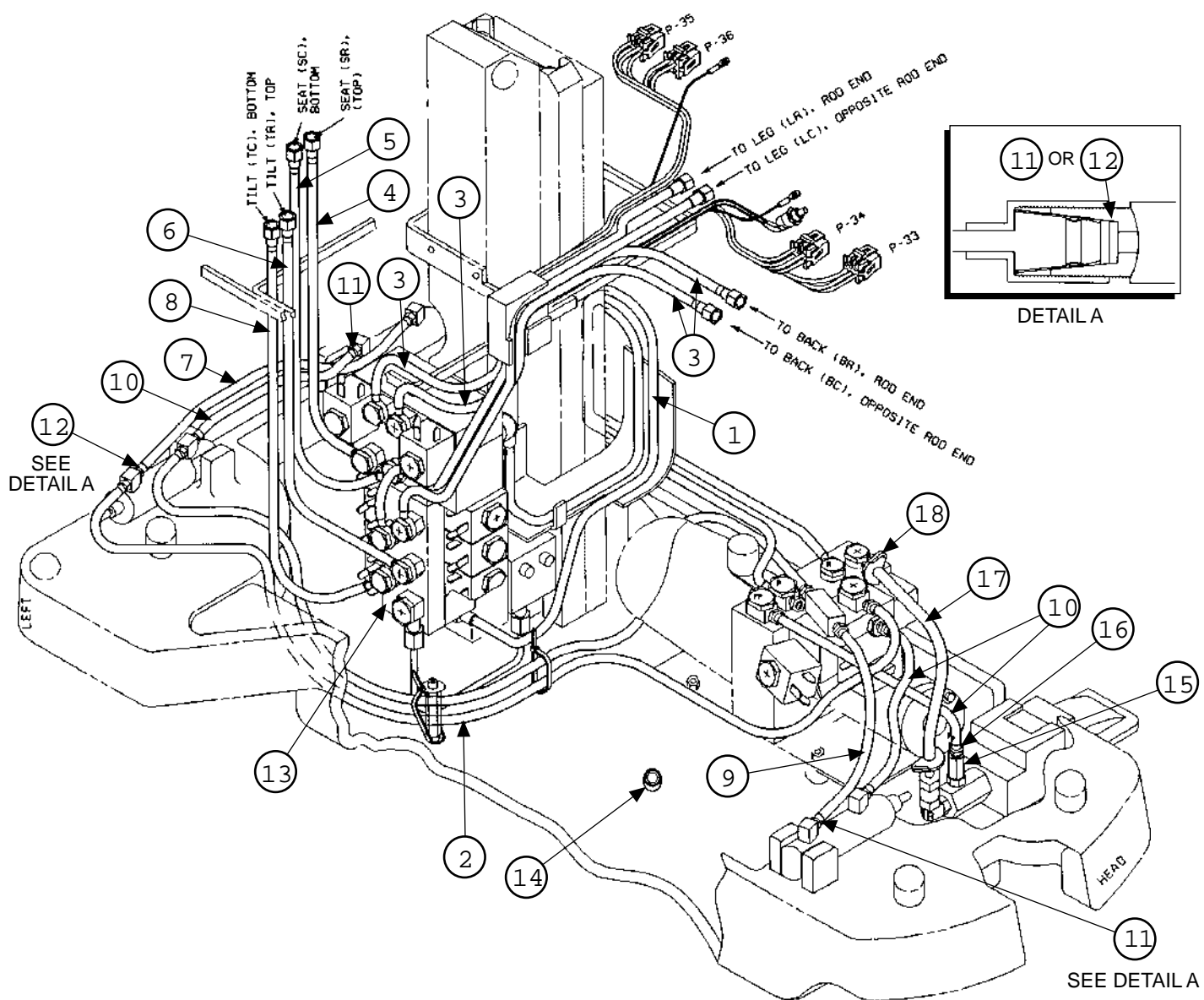


FIGURE 13-22. Table Base and Column: Hydraulic Assembly

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
13-22-					TABLE BASE & COLUMN HYDRAULIC ASSEMBLY - RL & SP	X			
1	P	150823	398		HOSE, #4, 1600 mm	1			
2	P	150823	384		HOSE, #2, 1000 mm	1			
3	P	150823	388		HOSE, #2, 850 mm	4			
4	P	150823	389		HOSE, #2, 650 mm	1			
5	P	150823	390		HOSE, #2, 500 mm	2			
6	P	150823	617		HOSE, #4, 330 mm	1			
7	P	150823	385		HOSE, #2, 380 mm	1			
8	P	150823	618		HOSE, #4, 307 mm	1			
9	P	150823	386		HOSE, #2, 300 mm	1			
10	P	150823	387		HOSE, #2, 250 mm	3			
11	P	150823	527		RESTRICTOR, Disc w/Center Wire, .5 mm	2			
12	P	150823	565		RESTRICTOR, Disc w/Center Wire, .6 mm	1			
13	P	141210	122		ASSEMBLY, Valve, Column Mounted (see Figure 13-11)	1			
14	P	4433	041		SCREW, Set, 1/4-20 x 5/16" LG	1			
15	P	56397	377		COUPLING	1			
16	P	150823	426		CONNECTOR, Male	1			
17	R				TUBING, Superthane, 7/16"x1/4" ID x 10-3/4" LG	A/R			
18	P	129360	600		CLAMP, Hose	2			

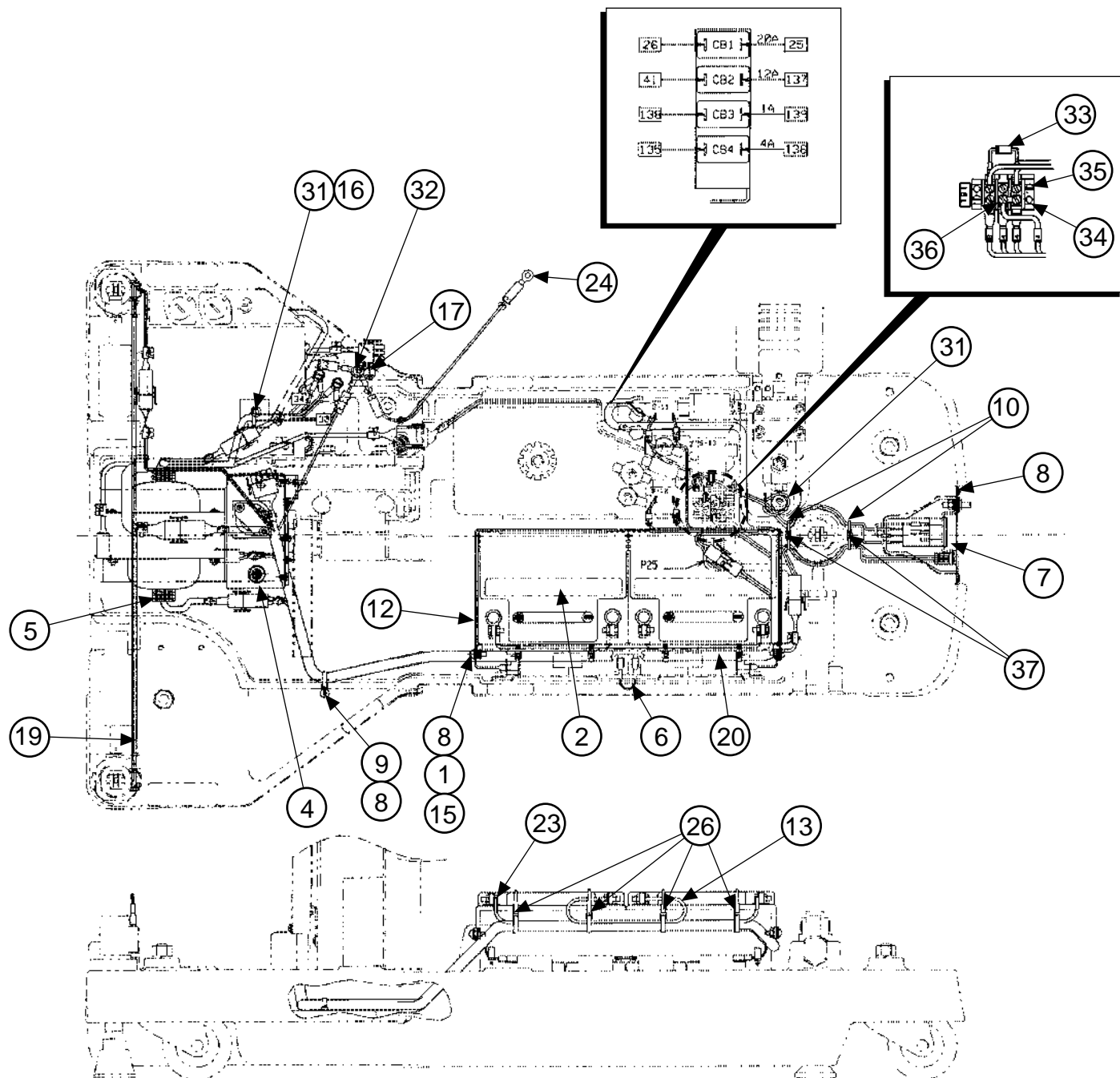


FIGURE 13-23a. Table Base and Column: Electrical Assembly (Part 1 of 3)



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FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY			
13-23-					TABLE BASE & COLUMN ELECTRICAL ASSEMBLY - RL & SP	X			
1	P	3153	041		NUT, Hex, #8-32	2			
2	P	136806	806		BATTERY, 12 Volt	2			
3	P	30743	045		LOCKWASHER, #4, External Tooth	7			
4	P	146653	939		CHARGER, Battery	1			
5	P	136807	033		TRANSFORMER, 24 V Wiring Assembly	1			
6	P	93909	468		JUMPER, Battery	1			
7	P	134469	091		ASSEMBLY, AC Plate (Power Supply)	1			
8	P	93908	037		SCREW, Sems, #8-32 x 1/2" LG	9			
9	P	93909	461		WIRE TIE, #10	3			
10	P	93909	462		WIRE TIE, #4	9			
11	P	13334	045		SCREW, Rd. Hd., #4-40 x 3/8" LG	7			
12	P	93909	212		BRACKET, Battery Support	1			
13	P	93909	467		JUMPER, Motor-Battery	1			
14	P	82675	001		SCREW, Hex Hd., #10-32 x 3/8" LG	3			
15	P	84114	003		WASHER, Flat #8	6			
16	P	150476	930		MOUNTING BASE	1			
17	P	129360	483		STICKER, Natural Ground	3			
18	P	134469	178		ASSEMBLY, Cable, P9 to P10	1			
19	P	136807	035		ASSEMBLY, Wiring, Limit Switch	1			
20	P	141210	140		ASSEMBLY, Cable, Table Base	1			
21	P	141210	141		ASSEMBLY Cable, Solenoid	1			
22	P	141210	144		ASSEMBLY, Cable, P3 to P8	1			
23	P	136807	036		ASSEMBLY, Cable, P25 to Battery	1			
24	P	93909	525		STRAP Ground Assembly				
25	P	141210	142		ASSEMBLY, Cable, P1 to P5 & P22	1			
26	P	129360	598		TIE, Cable	4			
27	P	93909	548		PLATE, Offset Switch	1			
28	P	93909	549		SWITCH, Plate Stud Assembly	1			
29	P	93909	702		SWITCH, Roller Arm	1			
30	P	10370	045		NUT, Hex Mach., #2-56	2			
31	P	431172	091		TIE, Cable	13			
32	P	124361	013		LOCKWASHER, External Tooth, #10	3			
33	P	93909	780		ASSEMBLY, Rectifier	1			
34	P	129359	140		TERMINAL BLOCK	1			
35	P	81681	002		SCREW, Rd. Hd., #6-32 x 1/2" LG	2			
36	P	84123	001		JUMPER, #6 Stud	1			
37	P	90712	041		SCREW, Round Hd., #4-40 x 5/8"	9			

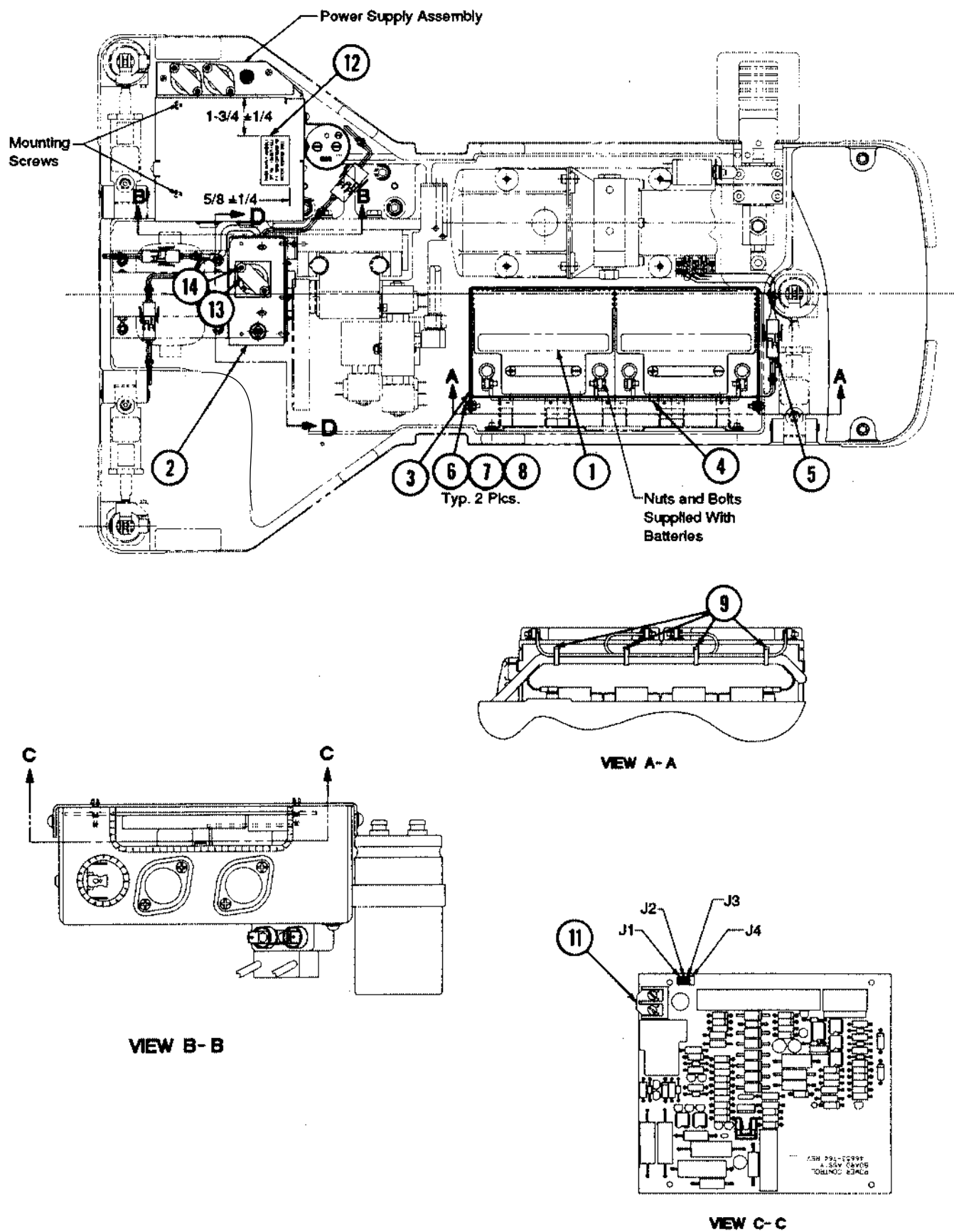
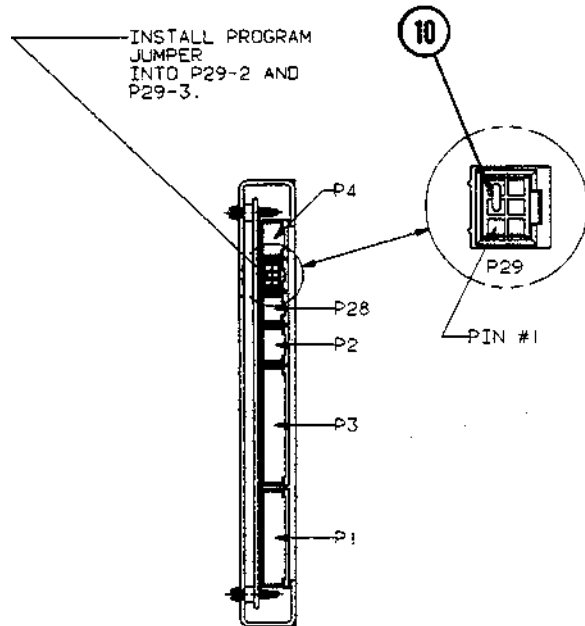
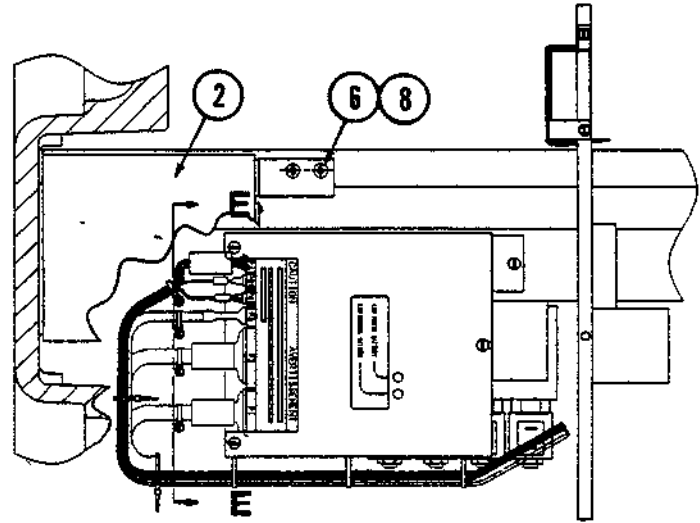


FIGURE 13-24. Electric-to-Battery Conversion

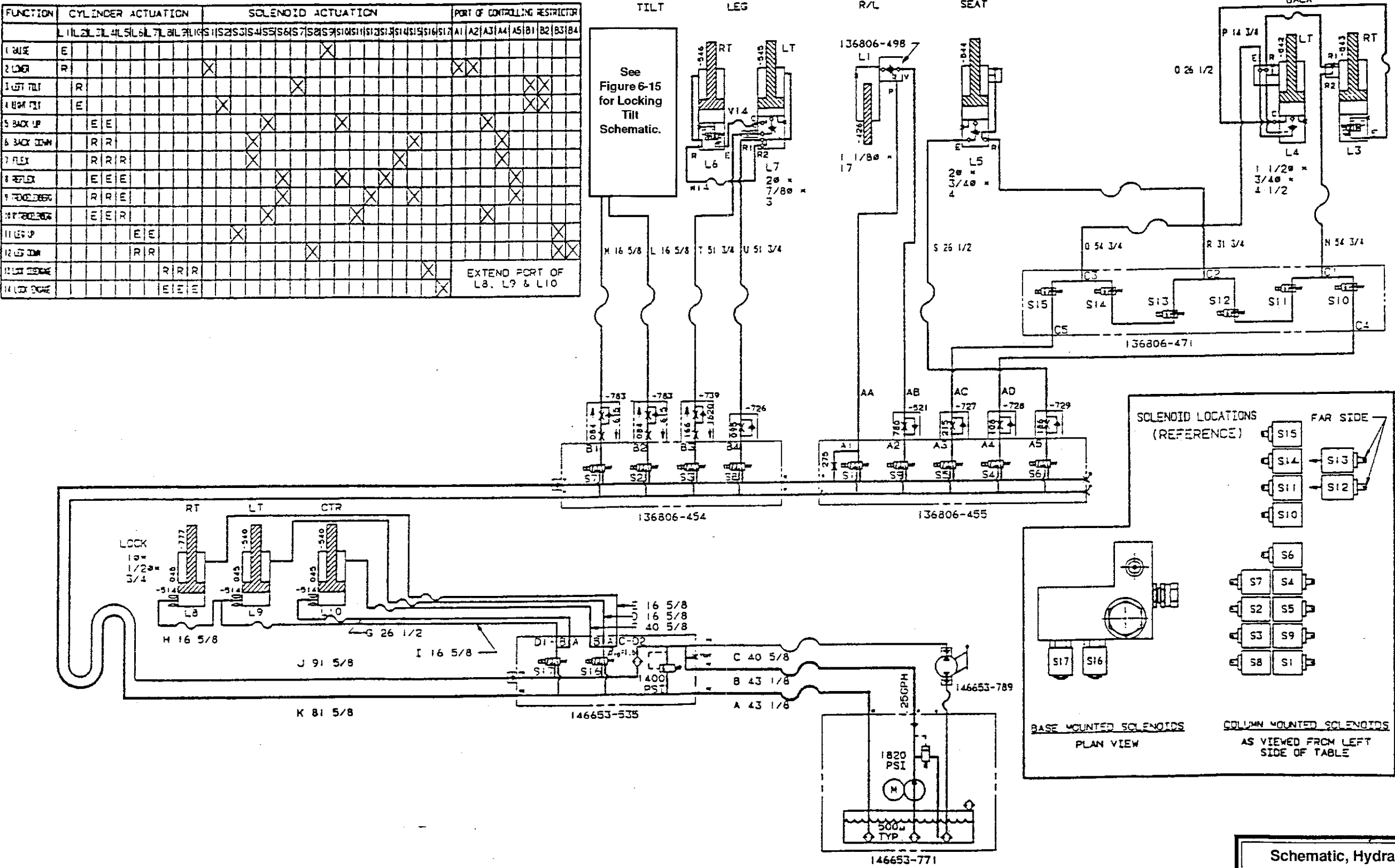


VIEW E-E



VIEW D-D

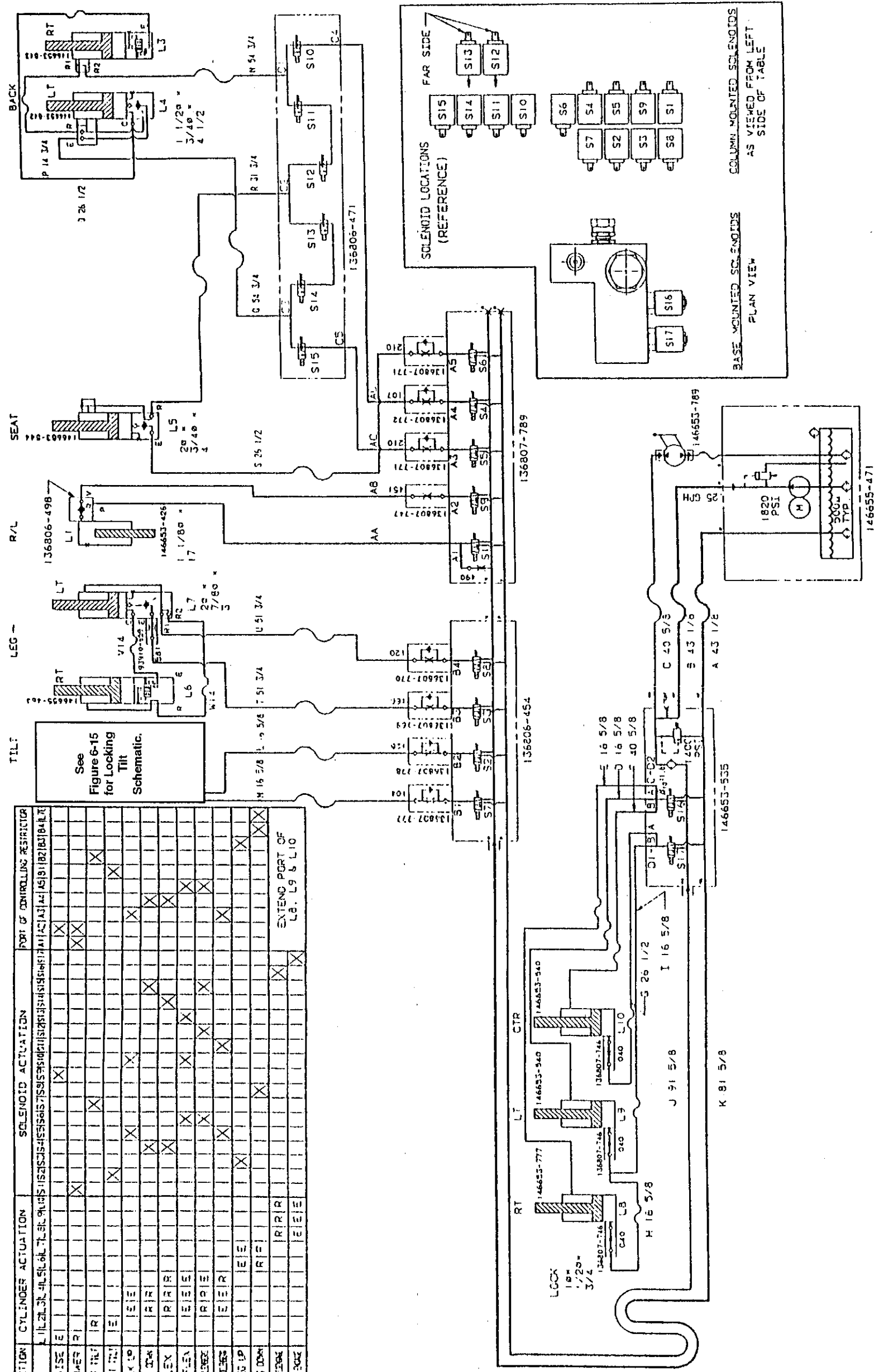
FIG. & INDEX NO.	PART NUMBER	SVC	DESCRIPTION	UNITS PER ASSEMBLY
13-24-	630939	039	ELECTRIC-TO-BATTERY CONVERSION	X
1	P 136806	806	BATTERY, 12 Volt	2
2	P 146653	939	ASSEMBLY, Battery Charger	1
3	P 93909	212	BRACKET, Battery Support (Coated)	1
4	P 93909	467	WIRE, Jumper, Motor Battery	1
5	P 136807	036	ASSEMBLY, Cable, P25 to Battery	1
6	P 93908	037	SCREW, Sems, #8-32 x 1/2 Long	4
7	P 3153	041	NUT, Hex, #8-32	2
8	P 84114	003	WASHER, Flat, #8	6
9	P 129360	598	CABLE TIE	4
10	P 93909	748	WIRE, Jumper, Program	1
11	P 129360	518	JUMPER	1
12	P 93909	750	LABEL, Battery Identification	1
13	P 129360	653	COVER, Protective	1
14	P 129360	652	SCREW, Tamper Resistant	2



Schematic, Hydraulic System - 3080RC
(After 6/89) 8/23/89

FUNCTION	CYLINDER ACTUATION	SOLENOID ACTUATION	PORT OF CONTROLLING RESTRICTOR
1 RAISE	L	L	L
2 LOWER	R	R	R
3 LEFT TILT	L	L	L
4 RIGHT TILT	R	R	R
5 BACK UP	E	E	E
6 3RD FLEX	R	R	R
7 FLEX	R	R	R
8 REPLEN	E	E	E
9 REPLEN	R	R	R
10 REPLEN	E	E	E
11 LEG UP	E	E	E
12 LEG DOWN	R	R	R
13 EXTENSION	R	R	R
14 LOCK	E	E	E

EXTEND PORT OF
L8, L9 & L10



Schematic, Hydraulic System - 3080RL

9/19/89

COMPONENTS MOUNTED ON COLUMN

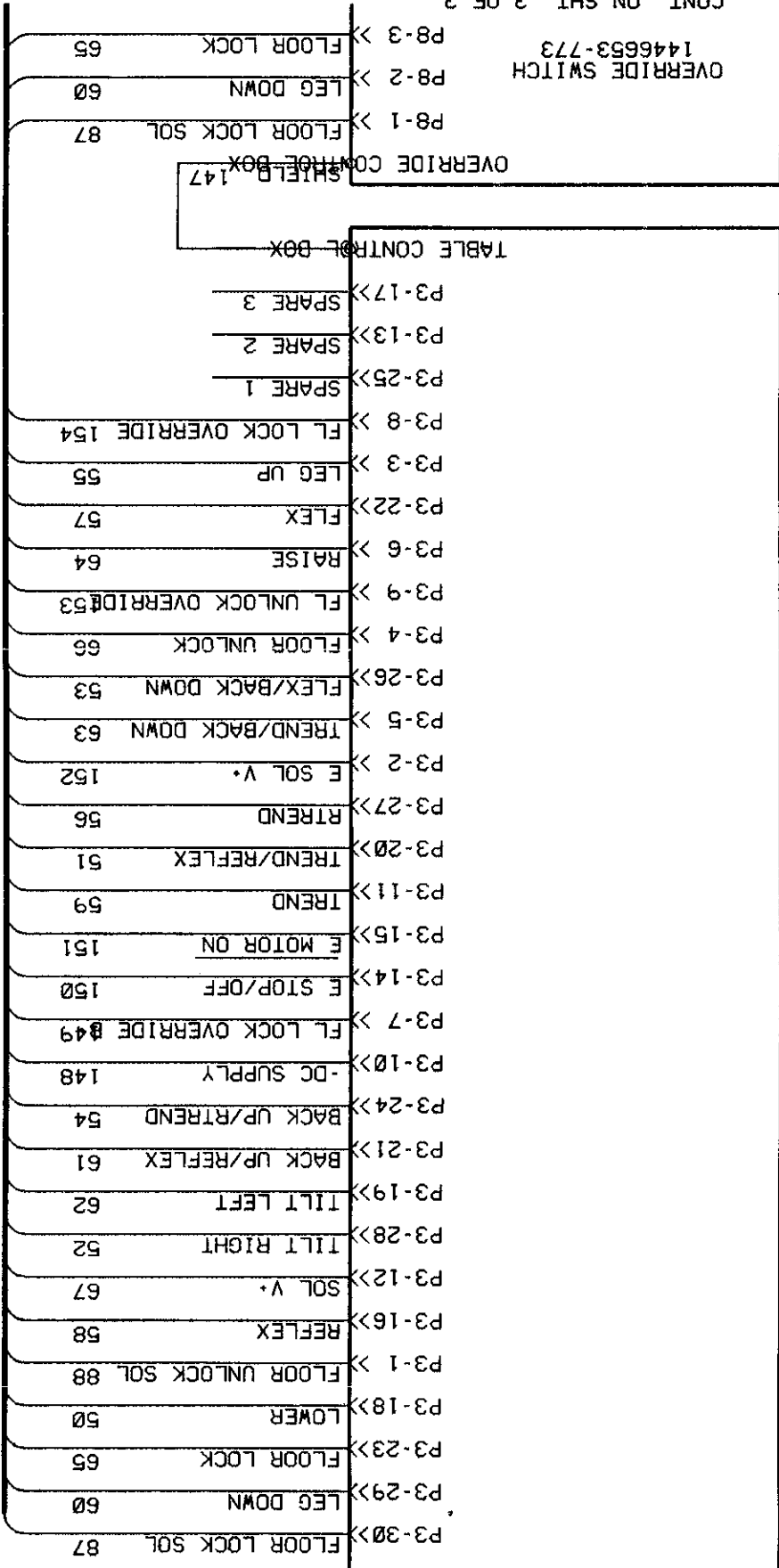
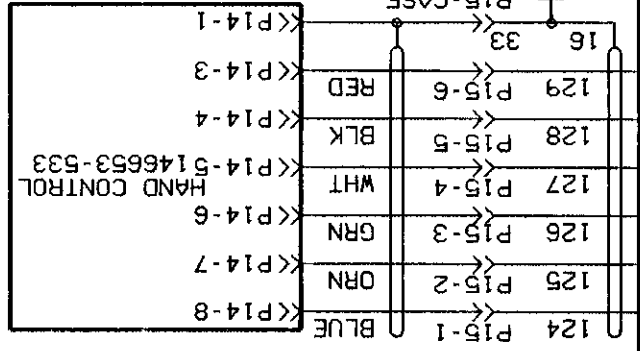
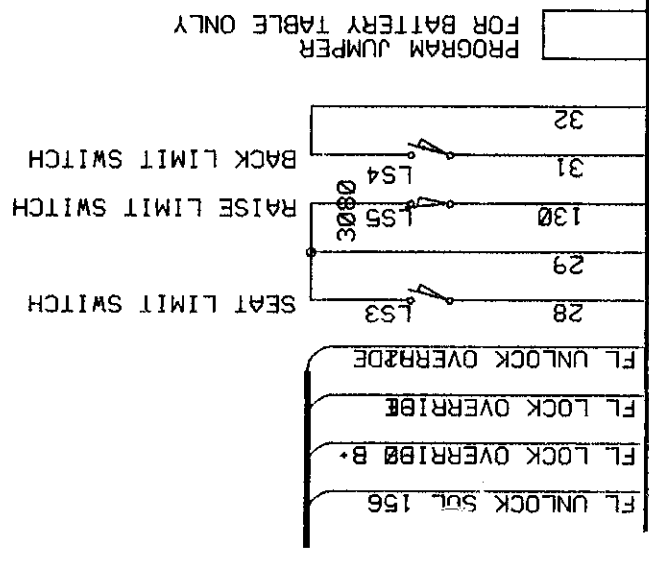
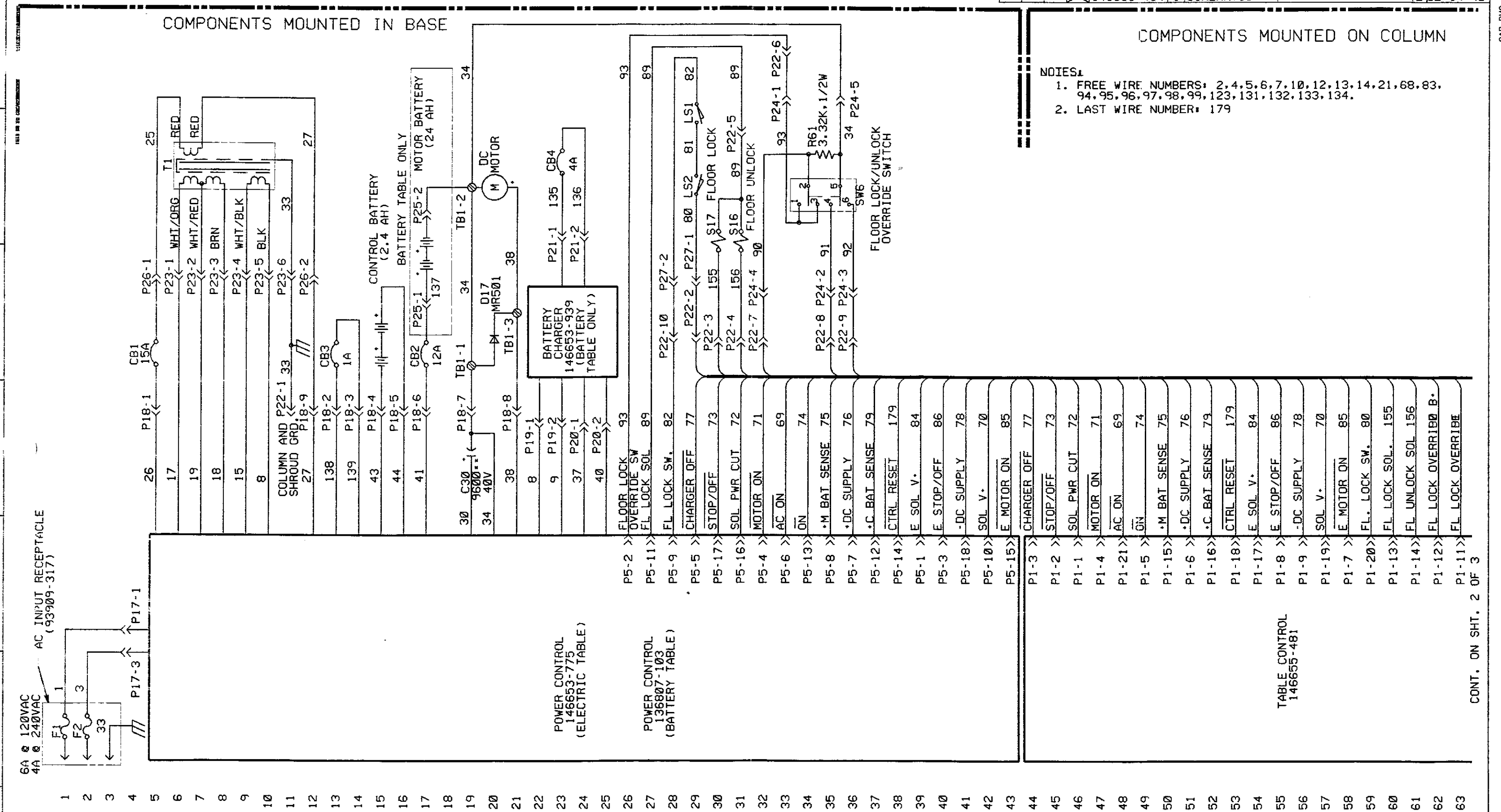


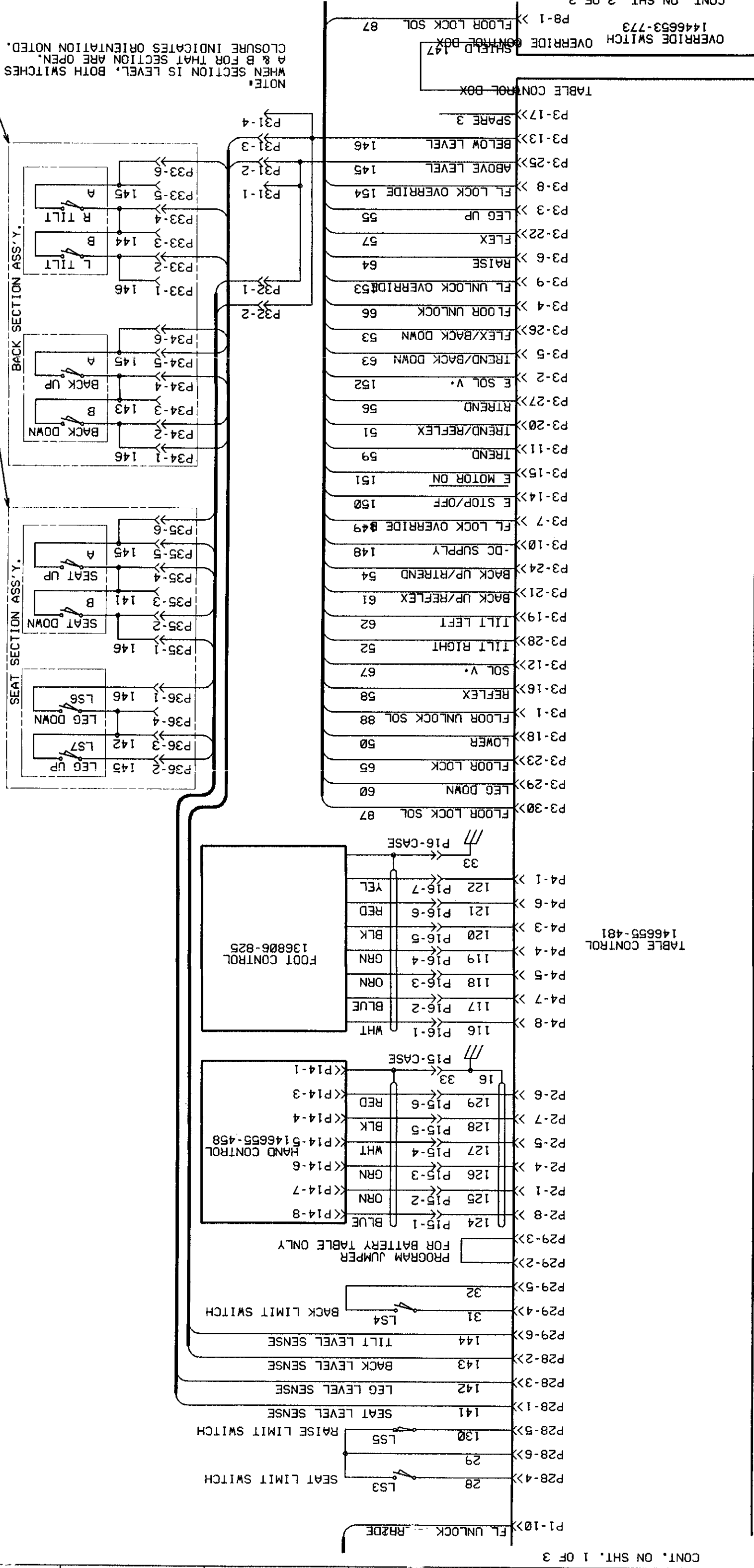
TABLE CONTROL 146653-534

64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128
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STANDARD	FRACTIONAL 1/64 DECIMAL ±.005	UNLESS OTHERWISE NOTED	ANGULARITY ±1° MACH. SURF. 1.2°
DATE	DATE	DATE	DATE
DATE	DATE	DATE	DATE
DATE	DATE	DATE	DATE

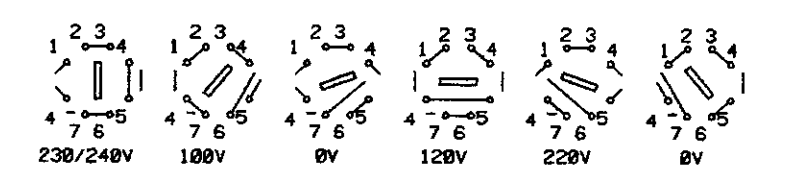
AMERICAN STERILIZER COMPANY
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D.J.M. (S) RAL (S) F.J.Z. (S) S.H.S. (S)
DATE 8-4-97 (S) 12-11-97 (S) 12-11-97 (S)
FIRST MADE FOR: 146653-763
2 3



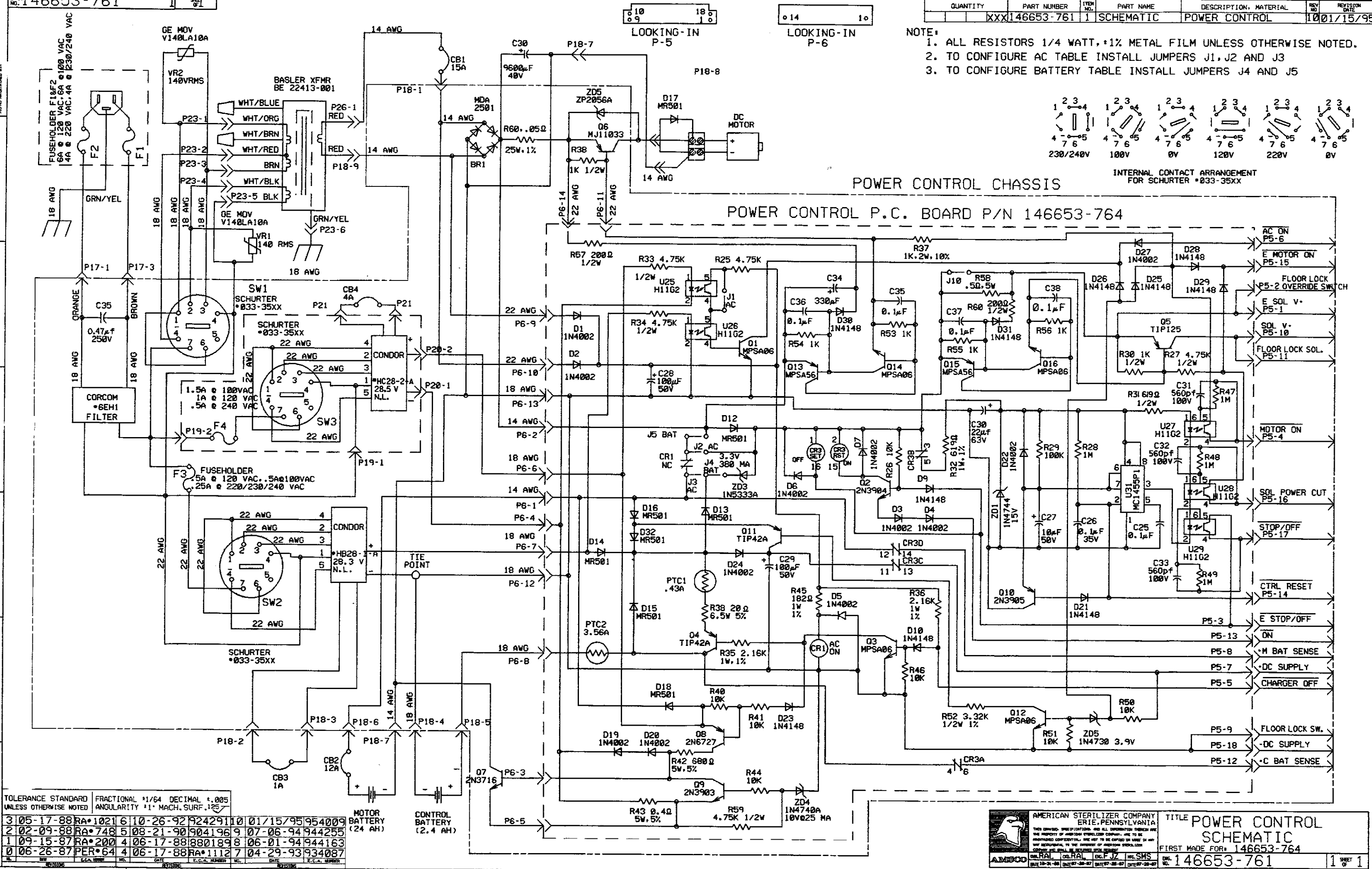


QUANTITY	PART NUMBER	ITEM NO.	PART NAME	DESCRIPTION, MATERIAL	REVISION
	XXX146653-761	1	SCHEMATIC	POWER CONTROL	1001/15/95

- NOTE:
1. ALL RESISTORS 1/4 WATT, ±1% METAL FILM UNLESS OTHERWISE NOTED.
 2. TO CONFIGURE AC TABLE INSTALL JUMPERS J1, J2 AND J3
 3. TO CONFIGURE BATTERY TABLE INSTALL JUMPERS J4 AND J5



INTERNAL CONTACT ARRANGEMENT FOR SCHURTER •033-35XX



TOLERANCE STANDARD	FRACTIONAL ±1/64 DECIMAL ±.005
UNLESS OTHERWISE NOTED	ANGULARITY ±1° MACH. SURF. ±25°
3 05-17-88 RA*1021	6 10-26-92 92429110
2 02-09-88 RA*748	5 08-21-90 9041969
1 09-15-87 RA*200	4 06-17-88 8801898
0 06-26-87 PER*64	4 06-17-88 RA*1112
	7 04-29-93 934087

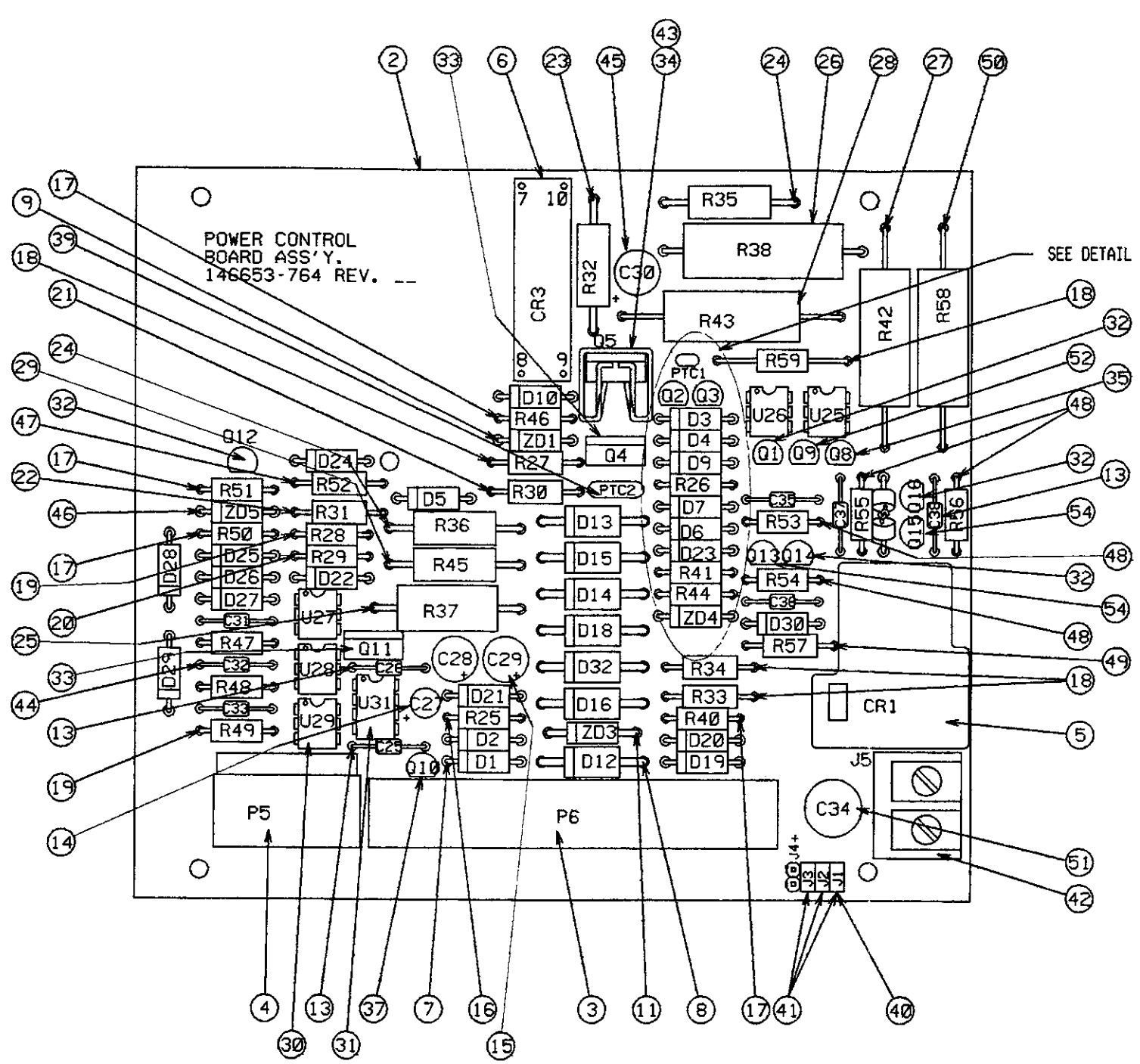
AMERICAN STERILIZER COMPANY
ERIE, PENNSYLVANIA

TITLE POWER CONTROL
SCHEMATIC

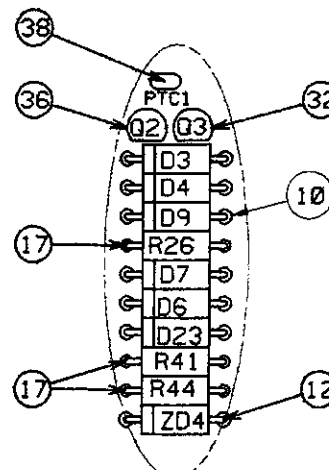
FIRST MADE FOR 146653-764

DWG. NO. 146653-761

1 SHEET OF 1




QUANTITY	PART NUMBER	ITEM NO.	PART NAME	DESCRIPTION, MATERIAL	REV. NO.	REVISION DATE
1	146653-764	1	POWER CONTROL BOARD ASS'Y.	BOARD ASS'Y.	12	01/15/95
1		2	POWER CONTROL BOARD			
1		3	CONNECTOR			
1		4	CONNECTOR			
1		5	RELAY			
1		6	RELAY			
12		7	DIODE			
7		8	DIODE			
1		9	DIODE			
10		10	DIODE			
1		11	DIODE			
1		12	DIODE			
6		13	CAPACITOR			
1		14	CAPACITOR			
2		15	CAPACITOR			
1		16	RESISTOR			
7		17	RESISTOR			
4		18	RESISTOR			
4		19	RESISTOR			
1		20	RESISTOR			
1		21	RESISTOR			
1		22	RESISTOR			
1		23	RESISTOR			
2		24	RESISTOR			
1		25	RESISTOR			
1		26	RESISTOR			
1		27	RESISTOR			
1		28	RESISTOR			
1		29	RESISTOR			
5		30	OPTO COUPLER			
1		31	TIMING CIRCUIT			
5		32	TRANSISTOR			
2		33	TRANSISTOR			
1		34	TRANSISTOR			
1		35	TRANSISTOR			
1		36	TRANSISTOR			
1		37	TRANSISTOR			
1		38	CURRENT PROTECTOR			
1		39	CURRENT PROTECTOR			
1		40	TERMINAL STRIP			
3		41	SHUNT			
1		42	TERMINAL BLOCK			
1		43	HEAT SINK			
3		44	CAPACITOR			
1		45	CAPACITOR			
1		46	DIODE			
1		47	RESISTOR			
4		48	RESISTOR			
2		49	RESISTOR			
1		50	RESISTOR			
1		51	CAPACITOR			
1		52	TRANSISTOR			
2		53				
2		54	TRANSISTOR			



DETAIL 'A'

TOLERANCE STANDARD	FRACTIONAL *1/64	DECIMAL *.005
UNLESS OTHERWISE NOTED	ANGULARITY *1°	MACH. SURF. 125
9	10-26-92	924291
8	04-22-91	914109
7	08-21-90	904196
6	07-18-90	904185

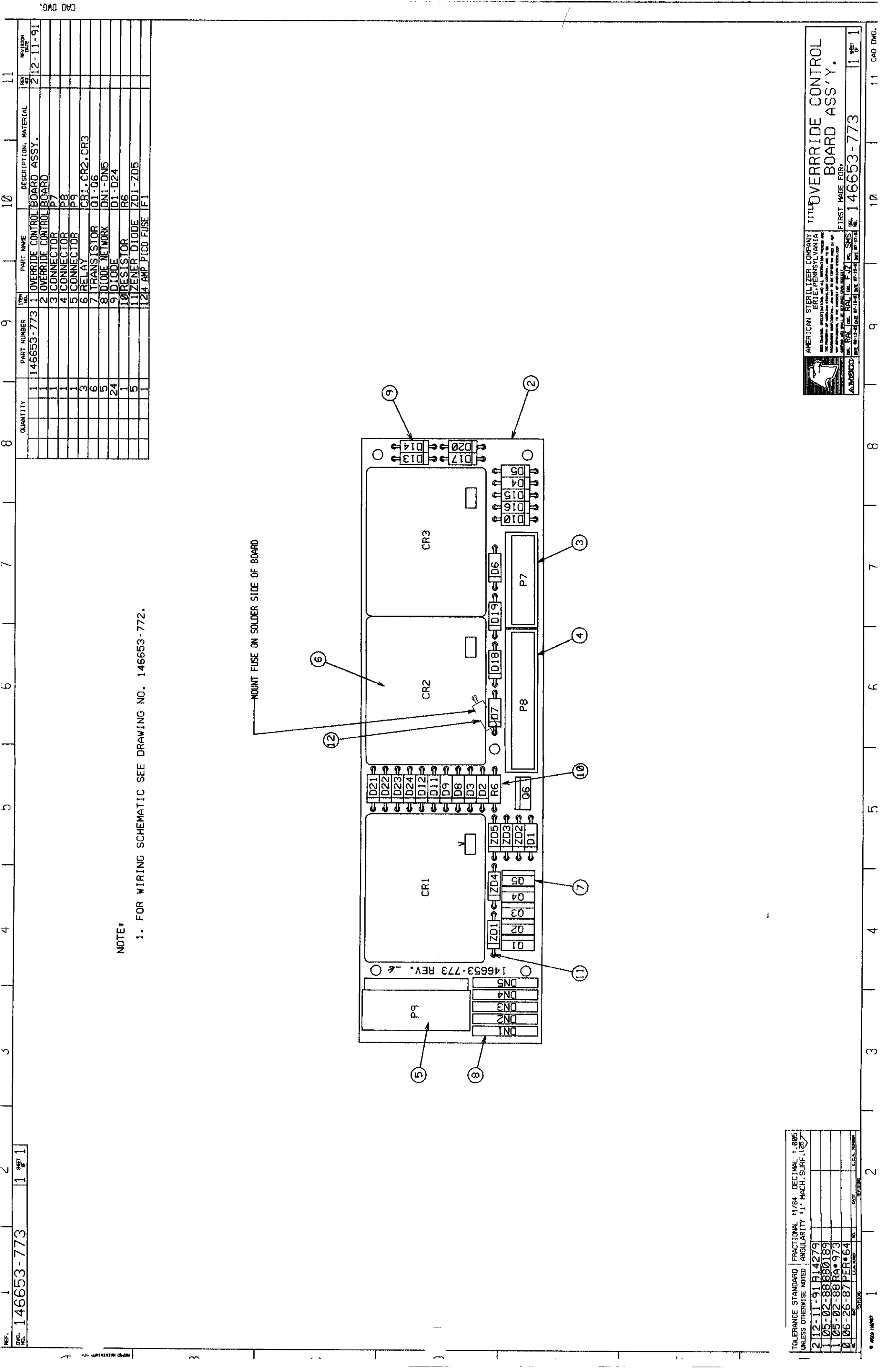


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DATE 02-03-95
DRAWN BY J.F.J.
CHECKED BY J.F.J.
DATE 02-03-95

TITLE POWER CONTROL BOARD ASS'Y.
FIRST MADE FOR: 146653-775
REV. NO. 146653-764

1 SHEET OF 1
CAD DWG.



NOTE:

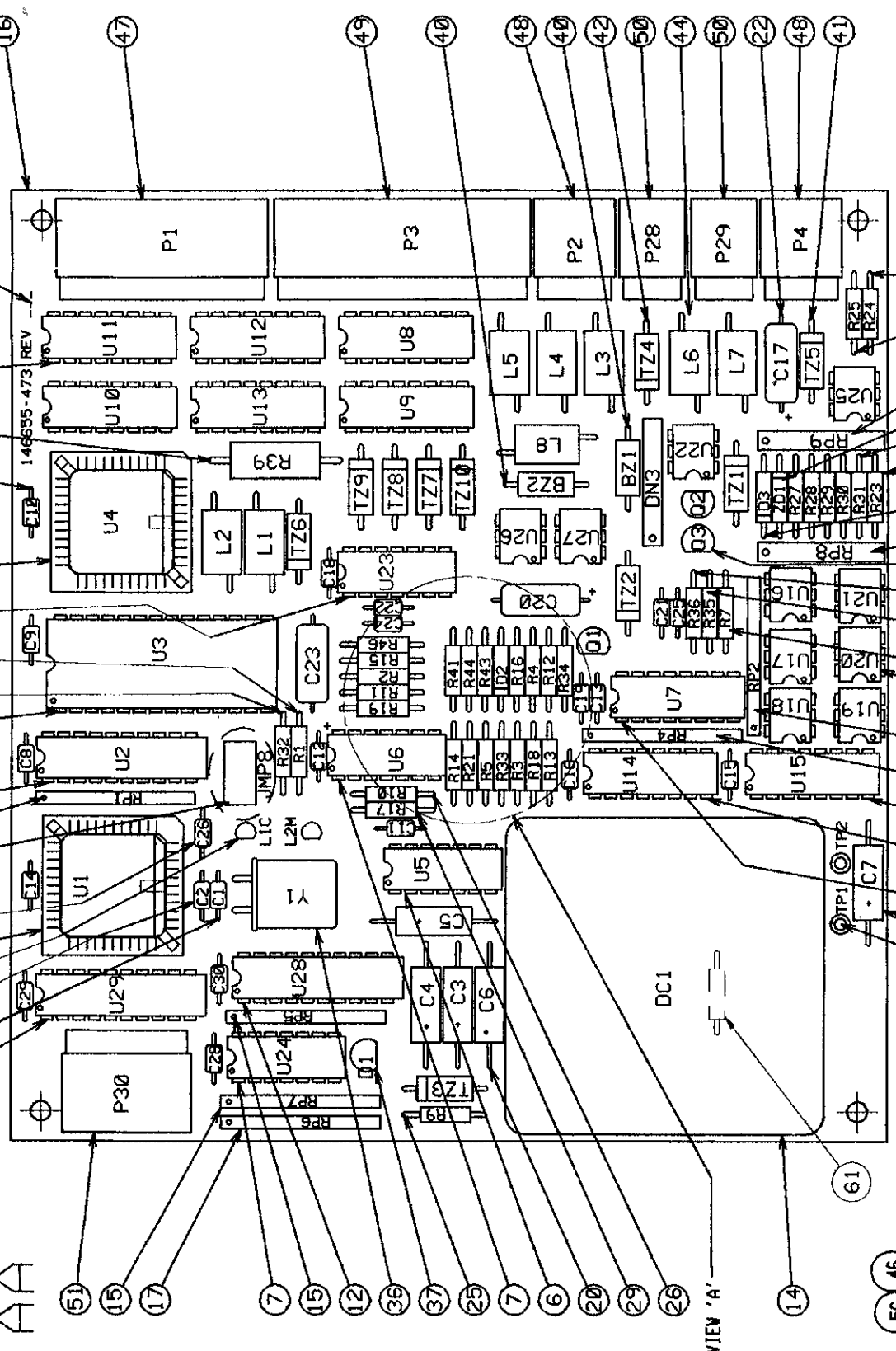
1. FOR WIRING SCHEMATIC SEE DRAWING NO. 146653-772.

TOLERANCE STANDARD		FRACTIONAL	±1/64	DECIMAL	±.005
UNLESS OTHERWISE NOTED		ANGULARITY	±1°	MACH. SURF.	±.025
2	12-11-91	1	14279		
1	05-02-88	88	880189		
1	05-02-88	RA	973		
0	06-26-87	PER	64		
DATE	DATE	DATE	DATE	DATE	DATE
12-11-91	05-02-88	05-02-88	05-02-88	05-02-88	05-02-88

AMERICAN STERILIZER COMPANY		TITLE		OVERRIDE CONTROL BOARD ASSY.	
ERIE, PENNSYLVANIA		REV		1	
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AMSCO		REV		1	
DATE 12-11-91		DATE 05-02-88		DATE 05-02-88	

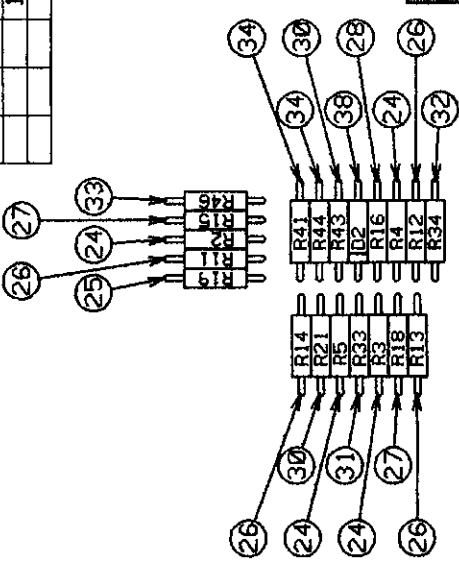
JUMPER ORIENTATION FOR
REVISIONS 0 THRU 7
(3080RL WITH
PARKER/BRUNING HYDRAULICS
AND 3080RC) AND
FACTORY TEST AND
FACTORY SET.

VIEW AA

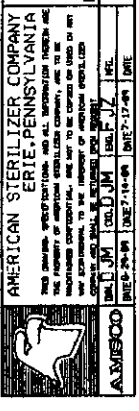


JUMPER ORIENTATION FOR
REVISIONS 8.
(BIERI HYDRAULICS, 3080RL).

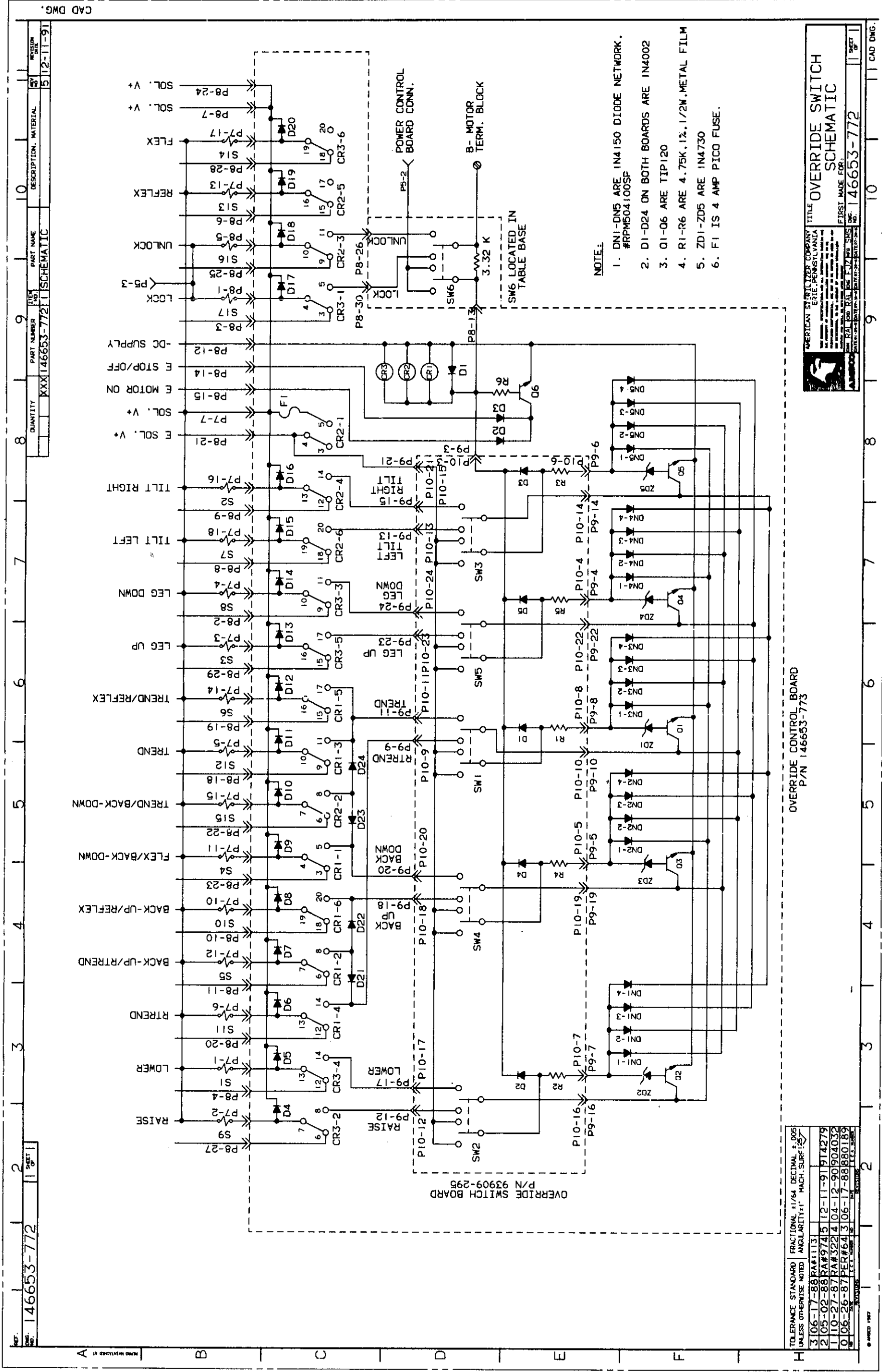
VIEW AA-1



REV.	DATE	BY	CHK.	APP.	DESCRIPTION
3	10-11-89	RA	64	7	06-30-92 92413911 05/25/94 944152
2	09-06-89	RA	25	6	04-05-91 91409910 03/23/94 944073
1	8-3-89	RA	22	5	11-12-90 90425519 08-16-93 934133
0	7-12-89	PER	4	4	10-11-89 90421218 02-22-93 934026



TITLE		TABLE CONTROL BOARD ASS'Y.
FIRST MADE FOR		146655-481
DWG. NO.	146655-473	1 SET 4



TOLERANCE STANDARD	FRACTIONAL 1/64 DECIMAL .005
UNLESS OTHERWISE NOTED	ANGULARITY 1/16" MACH SURF 1/32"
3 06-17-88	RA#1113
2 05-02-88	RA#974
1 10-27-87	RA#322
0 06-26-87	PER#64
0 06-26-87	PER#64

AMERICAN ELECTRIC COMPANY ESTD 1906 1000 N. 10TH ST. PHILADELPHIA, PA 19107 TEL: 215-596-1000 FAX: 215-596-1001	TITLE OVERRIDE SWITCH SCHEMATIC	REV 1 2 3 4 5 6 7 8 9 10 11 12	DATE 12-11-91
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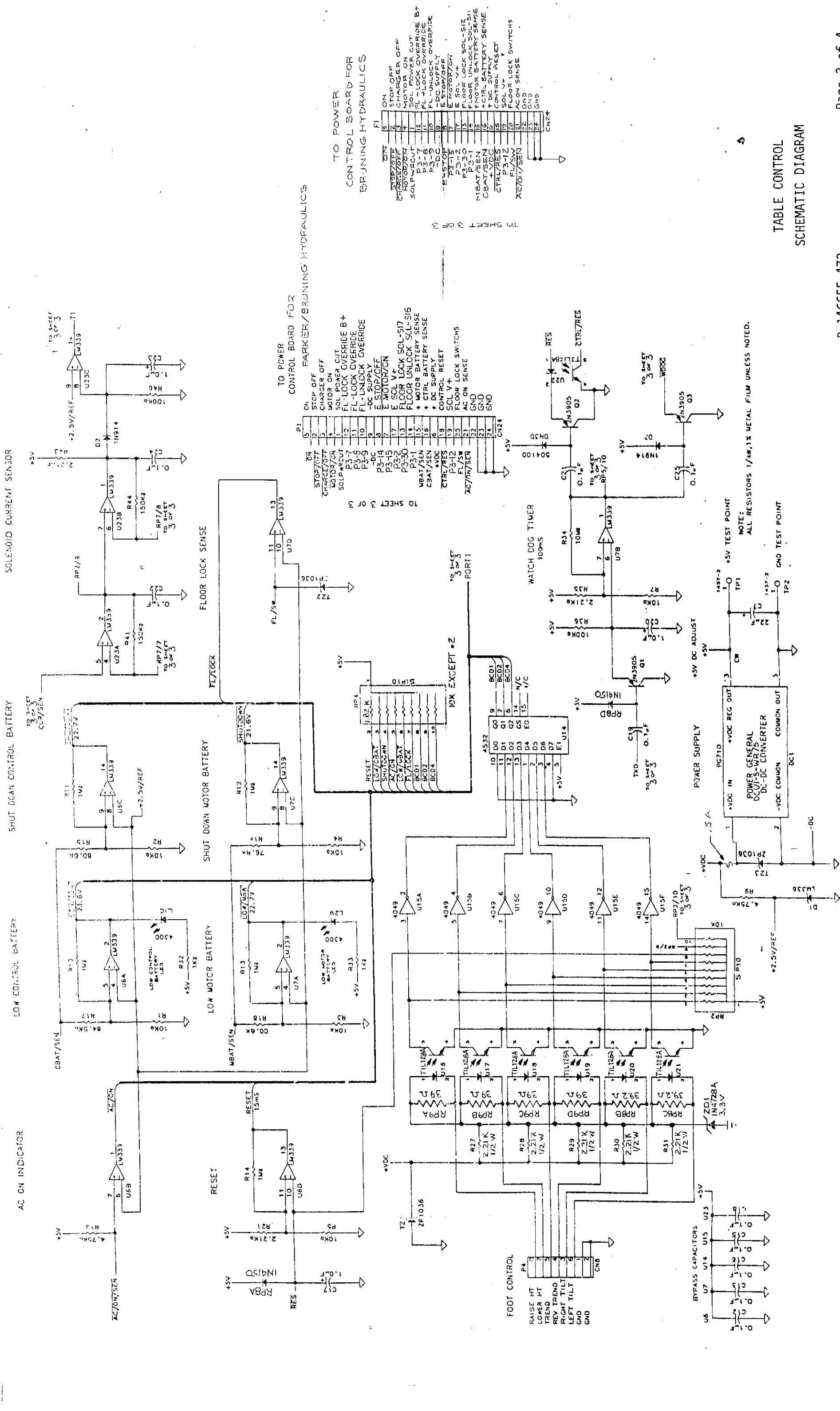
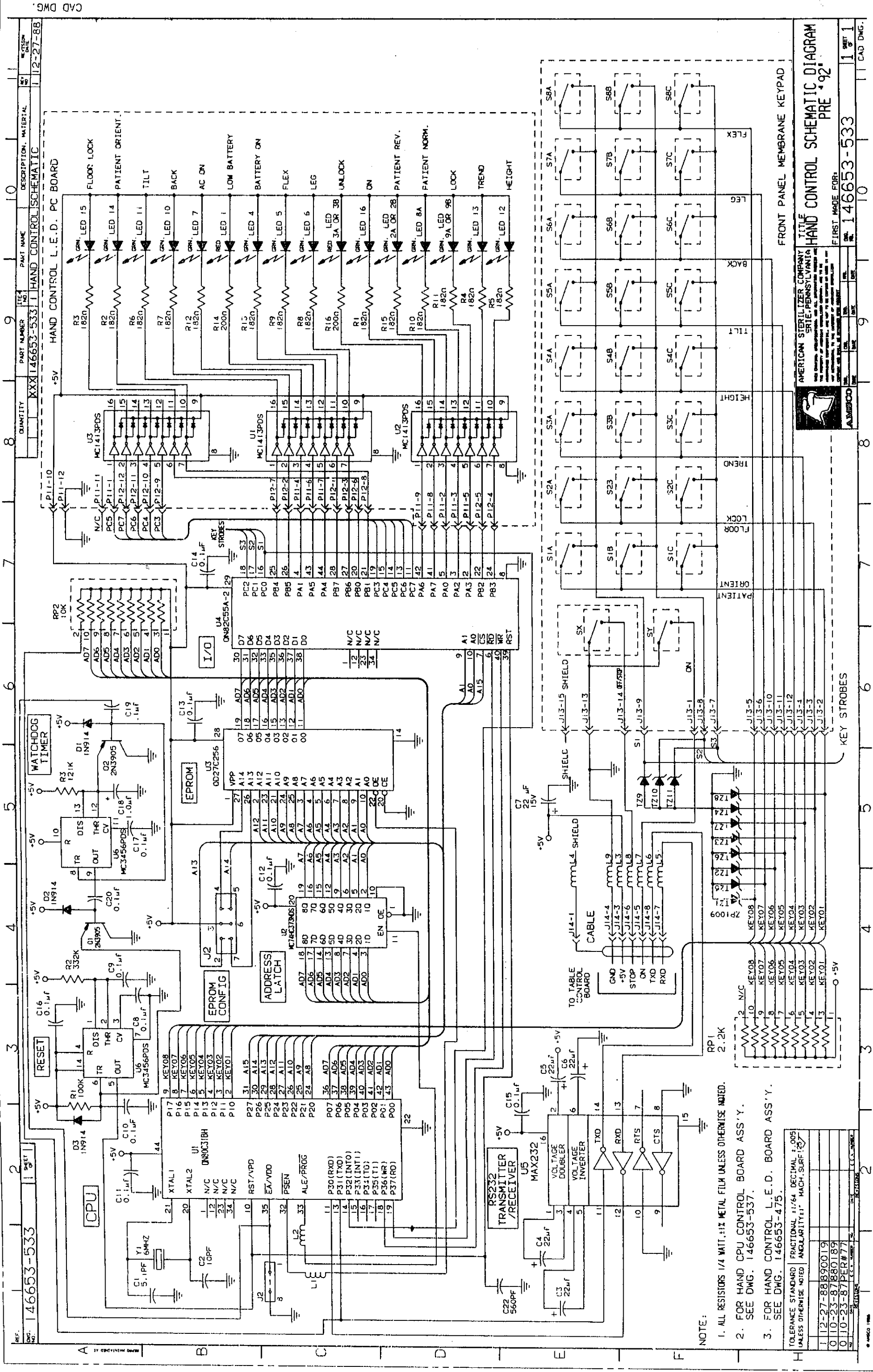


TABLE CONTROL
SCHEMATIC DIAGRAM

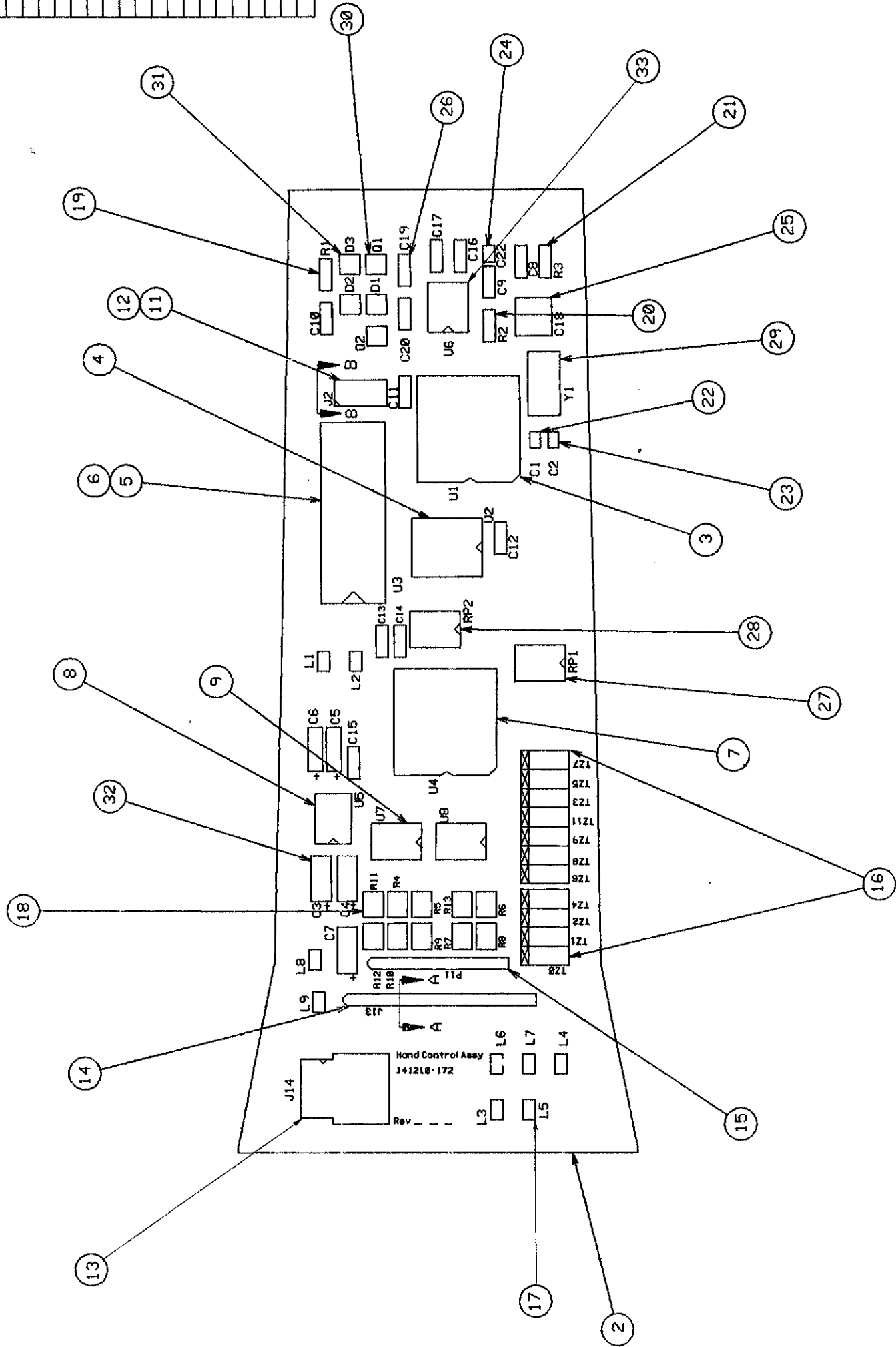


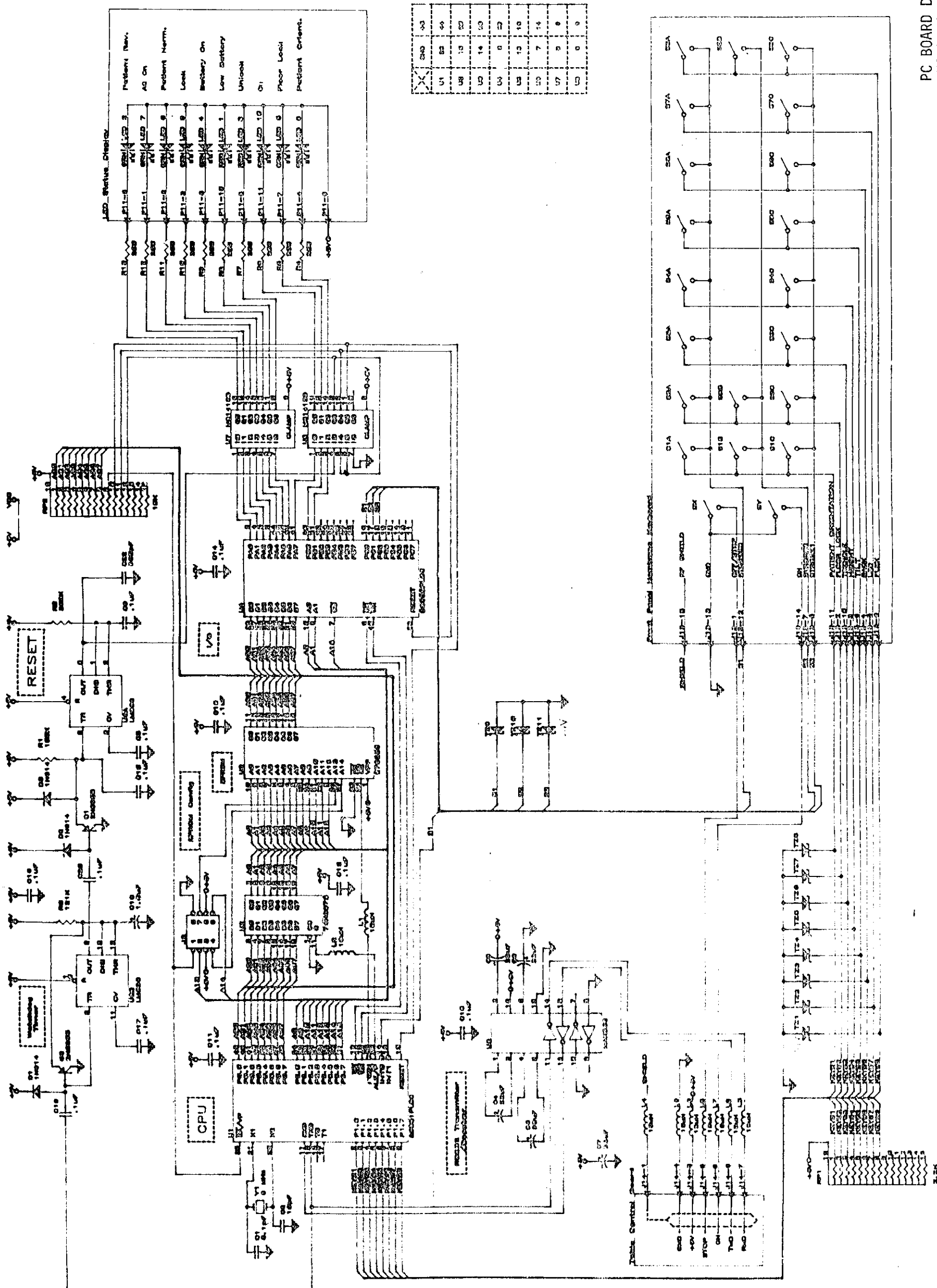
NOTE:
1. ALL RESISTORS 1/4 WATT, 5% METAL FILM UNLESS OTHERWISE NOTED.
2. FOR HAND CPU CONTROL BOARD ASS'Y.
SEE DWG. 146653-537.
3. FOR HAND CONTROL L.E.D. BOARD ASS'Y.
SEE DWG. 146653-475.

TOLERANCE	STANDARD	FRACTIONAL	DECIMAL	ANGULARITY	FINISH	REVISION
1	12-27-88	890019				
2	010-23-87	880189				
3	010-23-87	PER 71				
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AMERICAN STERILIZER COMPANY
SHEPHERD, PENNSYLVANIA
12-27-88
146653-533
HAND CONTROL SCHEMATIC DIAGRAM
PRE 92
FIRST MADE FOR:
146653-533
1 OF 1
CAD DWG.

QUANTITY	PART NUMBER	TRF. NO.	PART NAME	DESCRIPTION, MATERIAL	REV. NO.	REVISION DATE
X	141210-172	1	PC BOARD		4	09-27-94
1		2	BOARD DETAIL			
1		3	MICROCONTROLLER			
1		4	LATCH			
1		5	EPROM			
1		6	EPROM LABEL			
1		7	I/O EXPANDER			
1		8	XMITTER/RCVR			
2		9	DRIVER ARRAY			
3		11	SHUNT			
8		12	POST-SQ. PIN			
1		13	HEADER, DBL. ROW			
15		14	POST-SQ. PIN			
11		15	POST-SQ. PIN			
11		16	ZENER			
9		17	BEAD-SHIELD			
10		18	RESISTOR 200Ω			
1		19	RESISTOR 100K			
1		20	RESISTOR 120K			
1		21	RESISTOR 330K			
1		22	CAPACITOR 5.1pf			
1		23	CAPACITOR 100pf			
1		24	CAPACITOR 560pf			
1		25	CAPACITOR 1μf			
12		26	CAPACITOR 1μf			
1		27	RESISTOR PACK			
1		28	RESISTOR PACK			
1		29	CRYSTAL			
2		30	TRANSISTOR			
3		31	DIODE			
5		32	CAPACITOR			
1		33	DUAL TIMER			

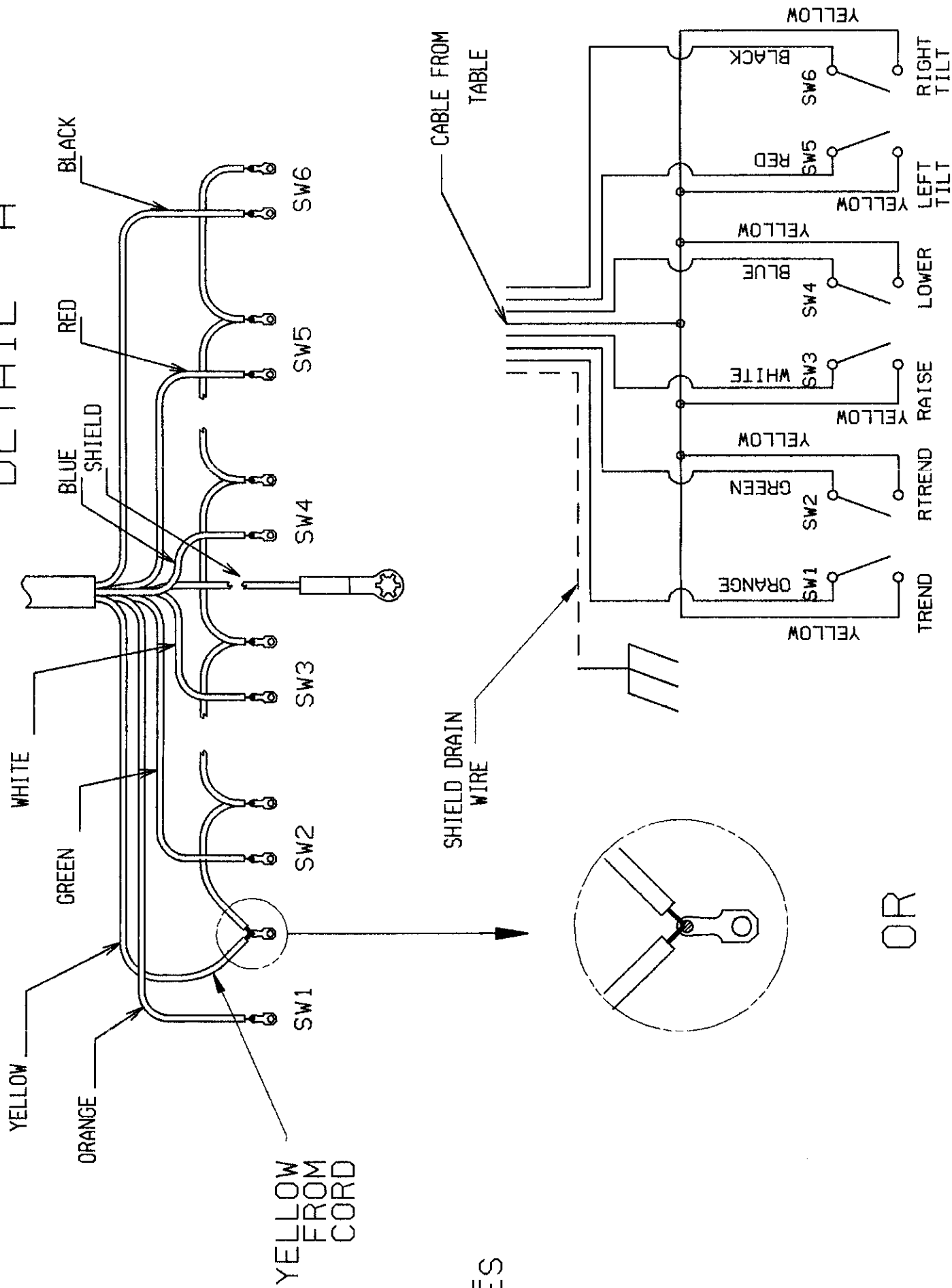




340	43
51	53
58	13
59	14
53	0
53	13
53	7
57	3
53	0
53	0

PC BOARD DETAIL
HAND CONTROL
POST "92"

DETAIL "A"



WIRING SCHEMATIC

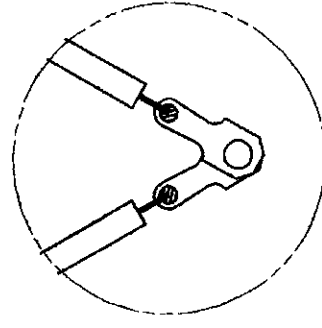
INSTRUCTIONS, CORD
REPLACEMENT FOR
FOOT CONTROL

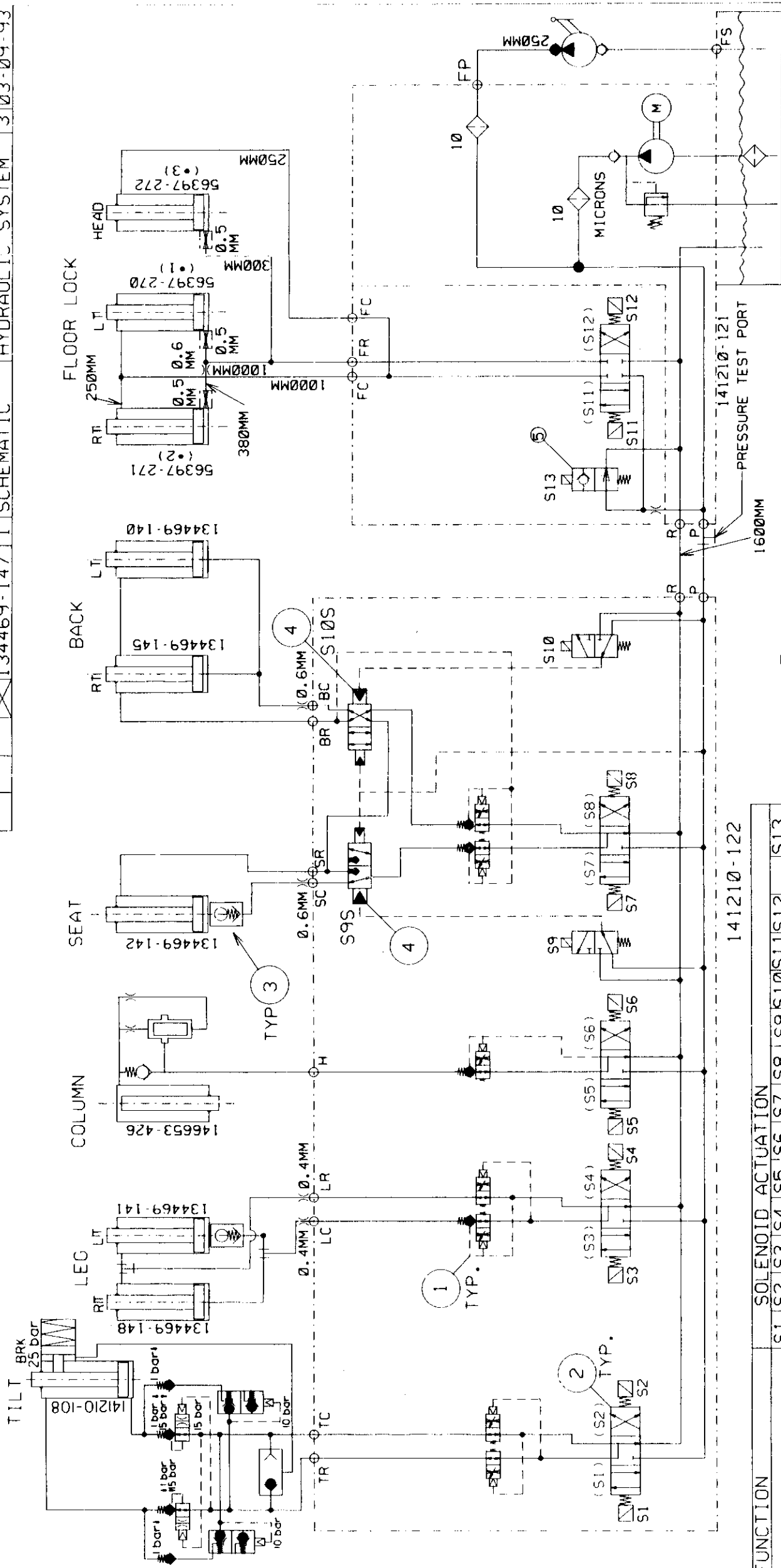
P/N 755716-207

PAGE 4 OF 4

REV. 0 DATE 12/08/93

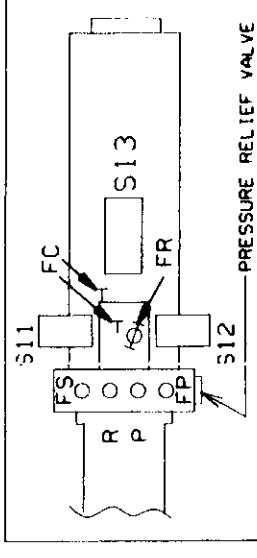
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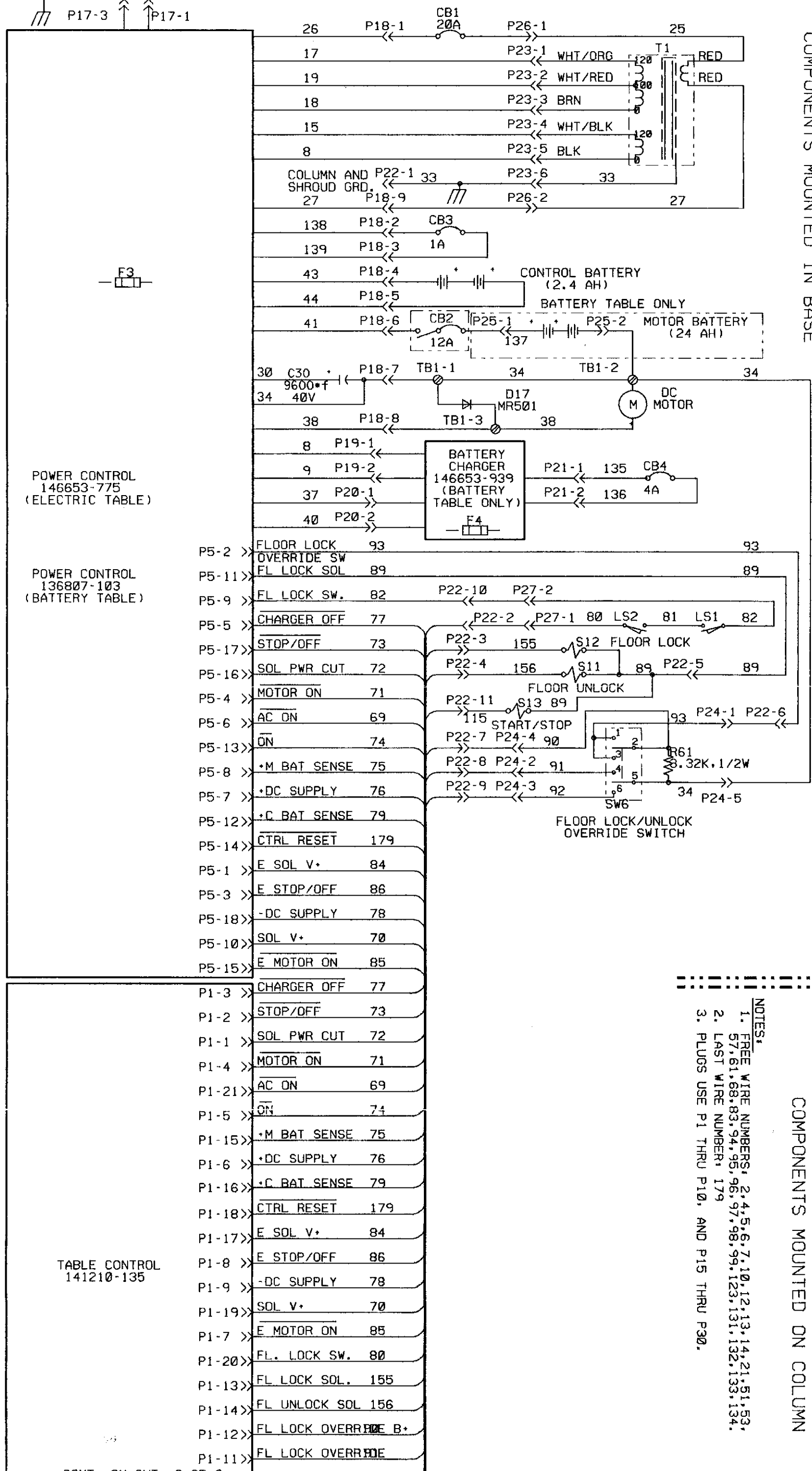
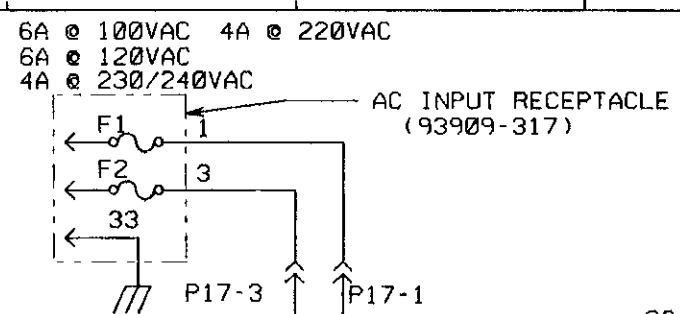
- 1 LOWERING BRAKE CHECK VALVE MODULE
- 2 DIRECTIONAL VALVES. ☒ IS ELECTRO MAGNET OPERATOR.
ALL VALVES SHOWN NOT ACTUATED.
- 3 FLOW FUSE VALVE
- 4 DIRECTIONAL VALVE LEAK-FREE. (SLAVE TO S9 OR S10)
- 5 START STOP VALVE

NOTE: REF. H. BIERI AG
DWG. 42890-S98

[illegible]

NO.		DATE	REVISION	E.C.A. NUMBER	NO.	DATE	REVISIONS	E.C.A. NUMBER
0	06	19	90	904227				
1	06	07	91	914148				
2	07	10	92	924156				
3	03	09	93	934040				


	
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DR. JKD	DATE 10-24-40
AMSCO	DATE 10-24-40



NOTES:

1. FREE WIRE NUMBERS: 2,4,5,6,7,10,12,13,14,21,51,53,57,61,68,83,94,95,96,97,98,99,123,131,132,133,134.
2. LAST WIRE NUMBER: 179
3. PLUGS USE P1 THRU P10, AND P15 THRU P30.


TOLL-ANCE STANDARD UNLESS OTHERWISE NOTED	FRACTIONAL ANDULARITY ± 1° MACH.	DECIMAL SURF. 1257
2 12-15-93 934213		
1 09-01-93 934143		
0 02-28-91 934027		
0 02-28-91 PER ● 6		
NO. OF DOTS	FACE SHEET	No.
	DRAWN	E.C.H. NUMBER

	AMERICAN STERILIZER COMPANY ERIE, PENNSYLVANIA		TITLE SCHEMATIC, SYSTEM 3080 (BIERI HYDRAULICS)	
	YOUR MODEL, REGISTERED TRADE MARK, AND THE THE PROPERTY OF AMERICAN STERILIZER COMPANY, ARE TO BE USED ONLY IN CONNECTION WITH THE PRODUCT OF AMERICAN STERILIZER COMPANY. NO OTHER TRADE, MARK, OR PRODUCT IDENTIFICATION SHALL BE USED IN CONNECTION WITH THIS PRODUCT.		FIRST MADE FOR: 146655, 4617462	
MODEL NO. 3080	SIZE 12"	DATE 1-1-54	REV. 1	SHEET 3
NO. 141210-126				

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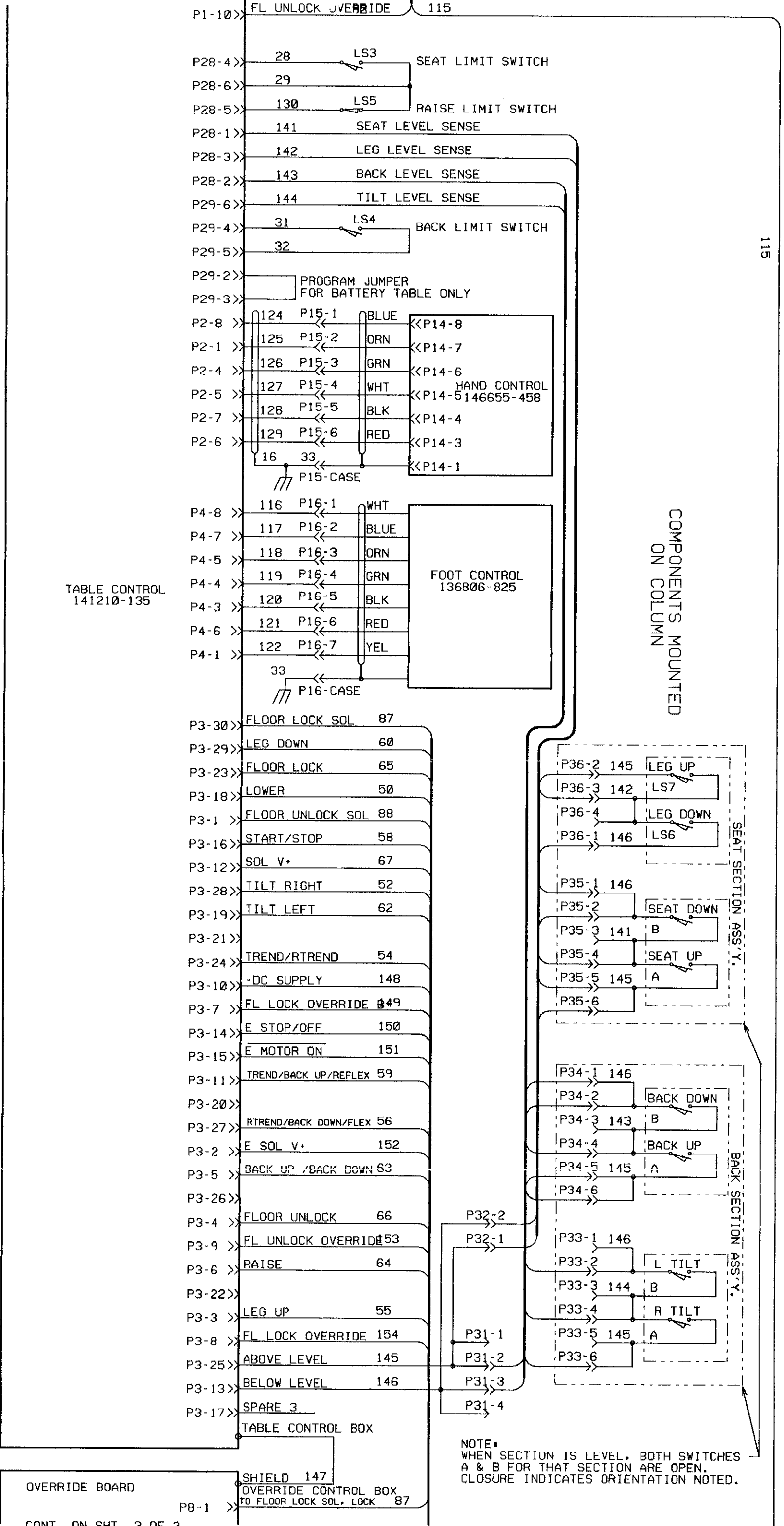
UNLESS OTHERWISE NOTED
FRACTIONAL: 1/64 DECIMAL: .005
ANGULARITY: 1° MACH. SURF. .125

DATE	10/1/93	BY	WJH	NO.	141210-126	REV.	1
DATE	10/1/93	BY	WJH	NO.	141210-126	REV.	2
DATE	10/1/93	BY	WJH	NO.	141210-126	REV.	3



AMSCO
STERILIZER COMPANY
ERIE, PENNSYLVANIA
TITLE
SCHEMATIC, SYSTEM
3080 (BIERI HYDRAULICS)
FIRST MADE FOR
141210-126
2 3

CONT. ON SHT. 3 OF 3



NOTE:
WHEN SECTION IS LEVEL, BOTH SWITCHES
A & B FOR THAT SECTION ARE OPEN.
CLOSURE INDICATES ORIENTATION NOTED.

COMPONENTS MOUNTED ON COLUMN

CONT. ON SHT. 2 OF 3

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P8-2 >>	LEG DOWN	60
P8-3 >>	FLOOR LOCK	65
P8-4 >>	LOWER	50
P8-5 >>	TO FLOOR UNLOCK SOL	88
P8-6 >>	START/STOP	58
P8-7 >>	SOL V+	67
P8-9 >>	TILT RIGHT	52
P8-8 >>	TILT LEFT	62
P8-10 >>		
P8-11 >>	TREND/RTREND	54
P8-12 >>	-DC SUPPLY	148
P8-13 >>	FL LOCK OVERRIDE	B149
P8-14 >>	E STOP/OFF	150
P8-15 >>	E MOTOR ON	151
P8-18 >>	TREND/BACK UP/REFLEX	59
P8-19 >>		
P8-20 >>	RTREND/BACK DOWN/FLEX	56
P8-21 >>	E SOL V+	152
P8-22 >>	BACK UP/BACK DOWN	63
P8-23 >>		
P8-25 >>	FLOOR UNLOCK	66
P8-26 >>	FL UNLOCK OVERRIDE	153
P8-27 >>	RAISE	64
P8-28 >>		
P8-29 >>	LEG UP	55
P8-30 >>	FL LOCK OVERRIDE	154
P7-7 >>	100	SOL V+
P7-18 >>	104 S2	TILT LEFT
P7-4 >>	102 S4	LEG DOWN
P7-1 >>	110 S6	LOWER
P7-5 >>	114 S7	TREND/BACK UP/REFLEX
P7-8 >>	100	SOL V+
P7-16 >>	103 S1	TILT RIGHT
P7-3 >>	101 S3	LEG UP
P7-2 >>	111 S5	RAISE
P7-6 >>	107 S8 100	RTREND/BACK DOWN/FLEX
P7-11 >>	123	
P7-12 >>	108 S10	TREND/RTREND
P7-14 >>	131	
P7-15 >>	109 S9	BACK
P7-13 >>	115	
P9-3 >>	157	<<P10-3
P9-4 >>	158	<<P10-4
P9-5 >>	159	<<P10-5
P9-6 >>	160	<<P10-6
P9-7 >>	161	<<P10-7
P9-8 >>	162	<<P10-8
P9-9 >>	163	<<P10-9
P9-10 >>	164	<<P10-10
P9-11 >>	165	<<P10-11
P9-12 >>	166	<<P10-12
P9-13 >>	167	<<P10-13
P9-14 >>	168	<<P10-14
P9-15 >>	169	<<P10-15
P9-16 >>	170	<<P10-16
P9-17 >>	171	<<P10-17
P9-18 >>	172	<<P10-18
P9-19 >>	173	<<P10-19
P9-20 >>	174	<<P10-20
P9-21 >>	175	<<P10-21
P9-22 >>	176	<<P10-22
P9-23 >>	177	<<P10-23
P9-24 >>	178	<<P10-24

OVERRIDE BOARD
141210-139

P30-1

115 << START/STOP

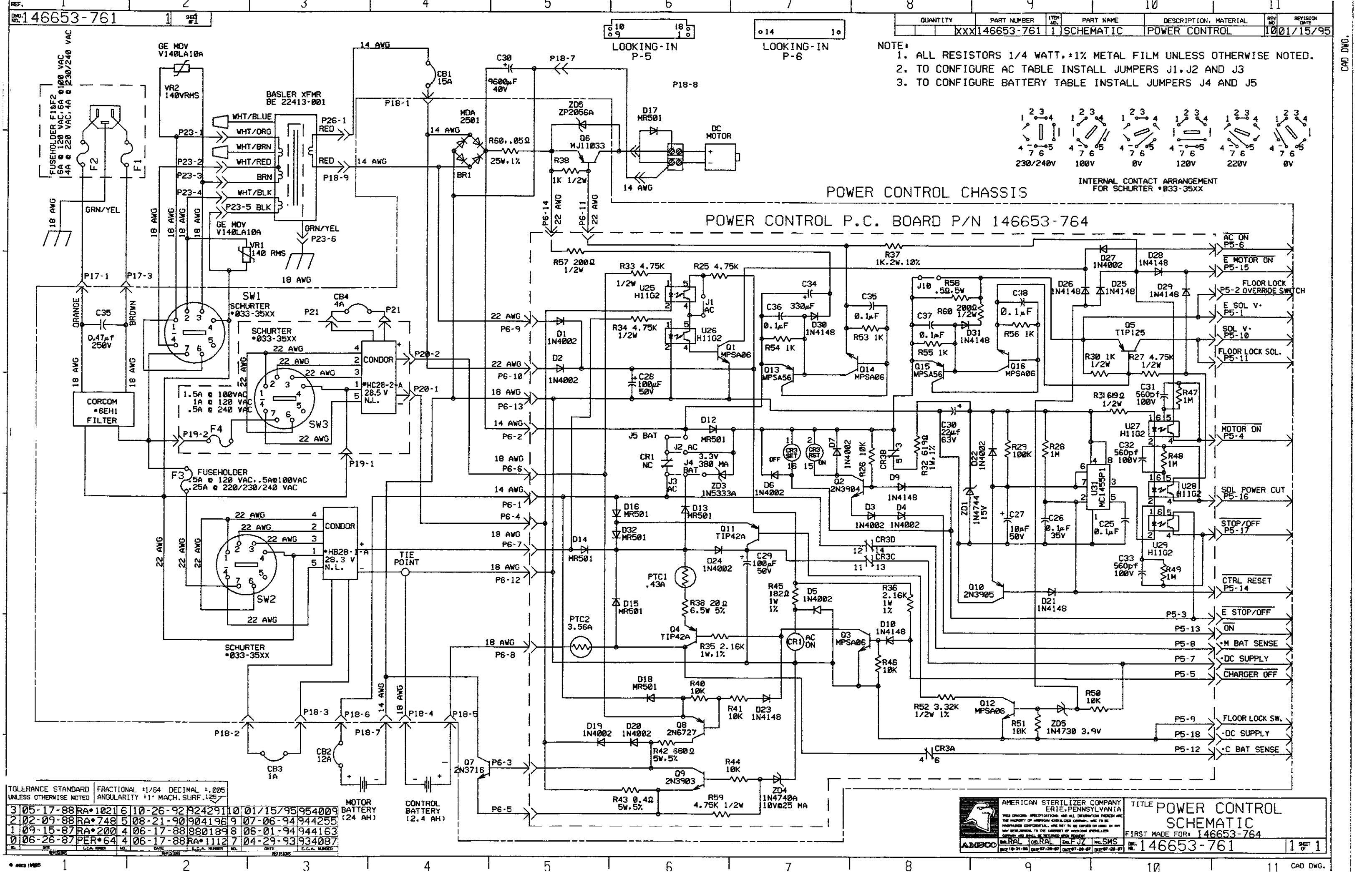
TO S13 (START/STOP)

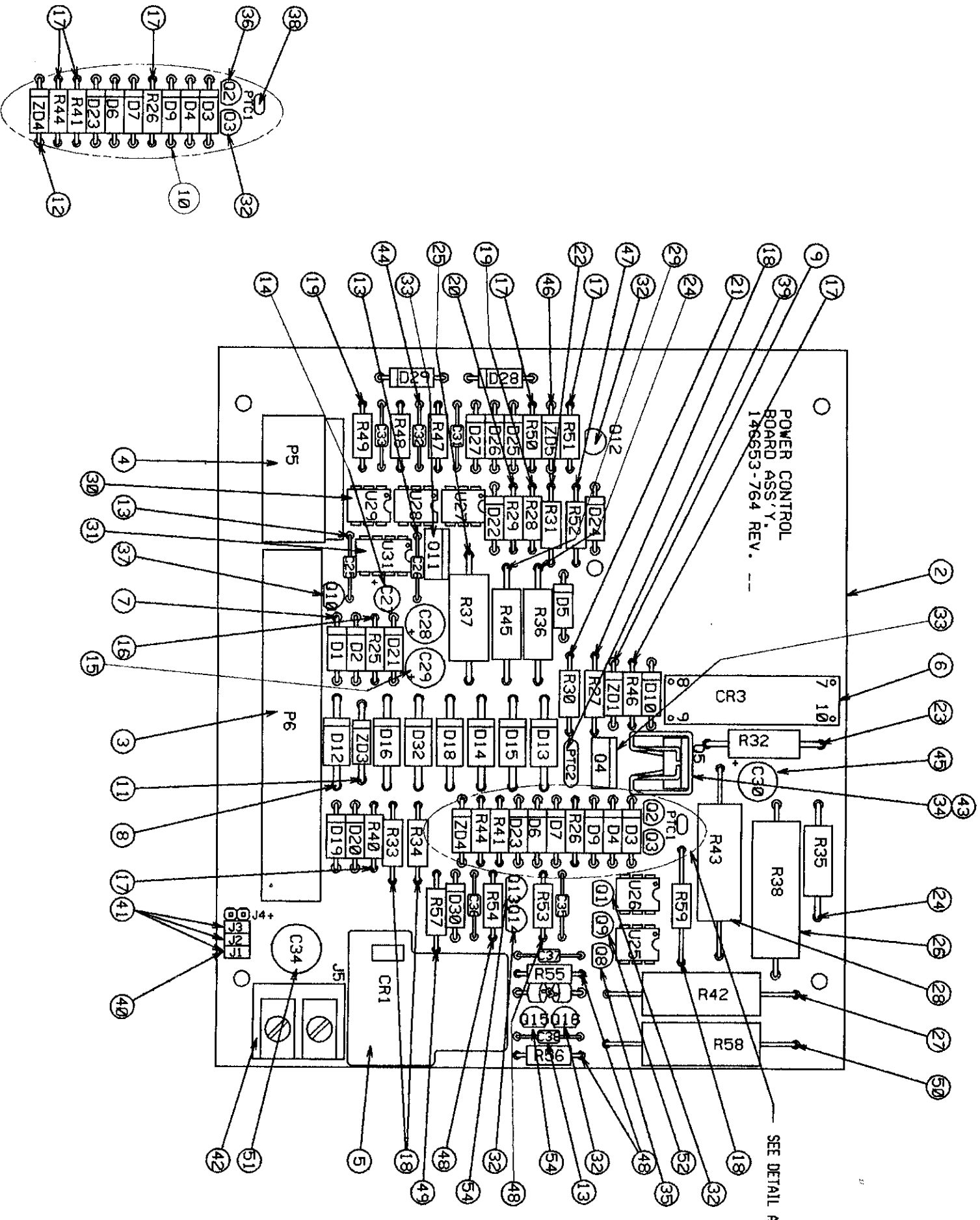
OVERRIDE
SW. BOARD
93909-295

TOLERANCE STANDARD FRACTIONAL 1/64 DECIMAL .005
UNLESS OTHERWISE NOTED ANGULARITY 1° MACH. SURF. 1.57

AMISCO
141210-126
3 3

AMERICAN STERILIZER COMPANY
ERIE, PENNSYLVANIA
SCHEMATIC, SYSTEM
3080 (BIERI HYDRAULICS)
FIRST MADE FOR
141210-126
3 3






DETAIL A:

TOLERANCE STANDARD		FRACTIONAL 1/64	DECIMAL ±.005
UNLESS OTHERWISE NOTED		ANGULARITY ±1°	MACH. SURF. ±.127
9	10-26-92	924291	
8	04-22-91	914109	1201/15/95
7	08-21-90	904196	1107-06-94
6	07-18-90	904185	1004-29-93
5	07-18-90	904185	1004-29-93

QUANTITY	PART NUMBER	ITEM NO.	PART NAME	DESCRIPTION MATERIAL	REV.	REVISION DATE
1	146653-764	1	POWER CONTROL BOARD ASS'Y.	BOARD	1201/15/95	
1		2	POWER CONTROL BOARD			
1		3	CONNECTOR			
1		4	CONNECTOR			
1		5	RELAY			
1		6	RELAY			
1		7	DIODE			
1		8	DIODE			
1		9	DIODE			
1		10	DIODE			
1		11	DIODE			
1		12	DIODE			
1		13	CAPACITOR			
1		14	CAPACITOR			
1		15	CAPACITOR			
1		16	RESISTOR			
1		17	RESISTOR			
1		18	RESISTOR			
1		19	RESISTOR			
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1		21	RESISTOR			
1		22	RESISTOR			
1		23	RESISTOR			
1		24	RESISTOR			
1		25	RESISTOR			
1		26	RESISTOR			
1		27	RESISTOR			
1		28	RESISTOR			
1		29	RESISTOR			
1		30	OPTO COUPLER			
1		31	TIMING CIRCUIT			
1		32	TRANSISTOR			
1		33	TRANSISTOR			
1		34	TRANSISTOR			
1		35	TRANSISTOR			
1		36	TRANSISTOR			
1		37	TRANSISTOR			
1		38	CURRENT PROTECTOR			
1		39	CURRENT PROTECTOR			
1		40	TERMINAL STRIP			
1		41	SHUNT			
1		42	TERMINAL BLOCK			
1		43	HEAT SINK			
1		44	CAPACITOR			
1		45	CAPACITOR			
1		46	DIODE			
1		47	RESISTOR			
1		48	RESISTOR			
1		49	RESISTOR			
1		50	RESISTOR			
1		51	CAPACITOR			
1		52	TRANSISTOR			
1		53	TRANSISTOR			
1		54	TRANSISTOR			



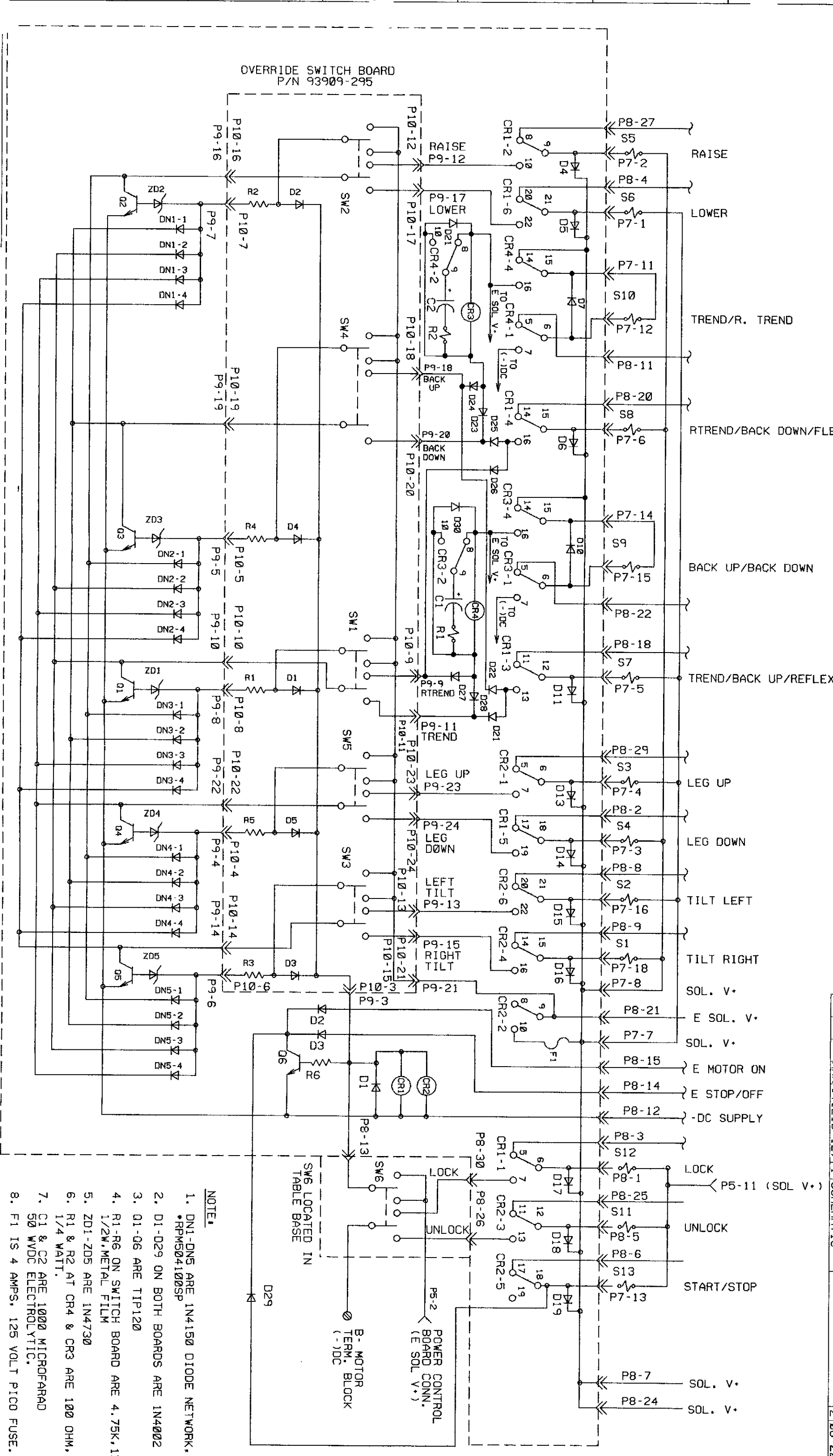
AMERICAN STERILIZER COMPANY
ENTER, PENNSYLVANIA
THE COMPANY OF AMERICAN STERILIZER COMPANY, INC. IS THE
SOLE MANUFACTURER OF AMERICAN STERILIZER COMPANY, INC. IN THE
UNITED STATES OF AMERICA AND IN CANADA. THE COMPANY OF AMERICAN
STERILIZER COMPANY, INC. IS THE SOLE MANUFACTURER OF AMERICAN
STERILIZER COMPANY, INC. IN THE UNITED STATES OF AMERICA AND IN CANADA.

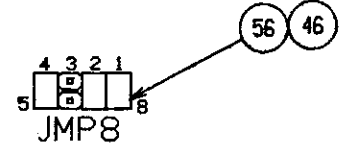
TITLE POWER CONTROL BOARD ASS'Y.

FIRST MADE FOR 146653-775

REV. 146653-764

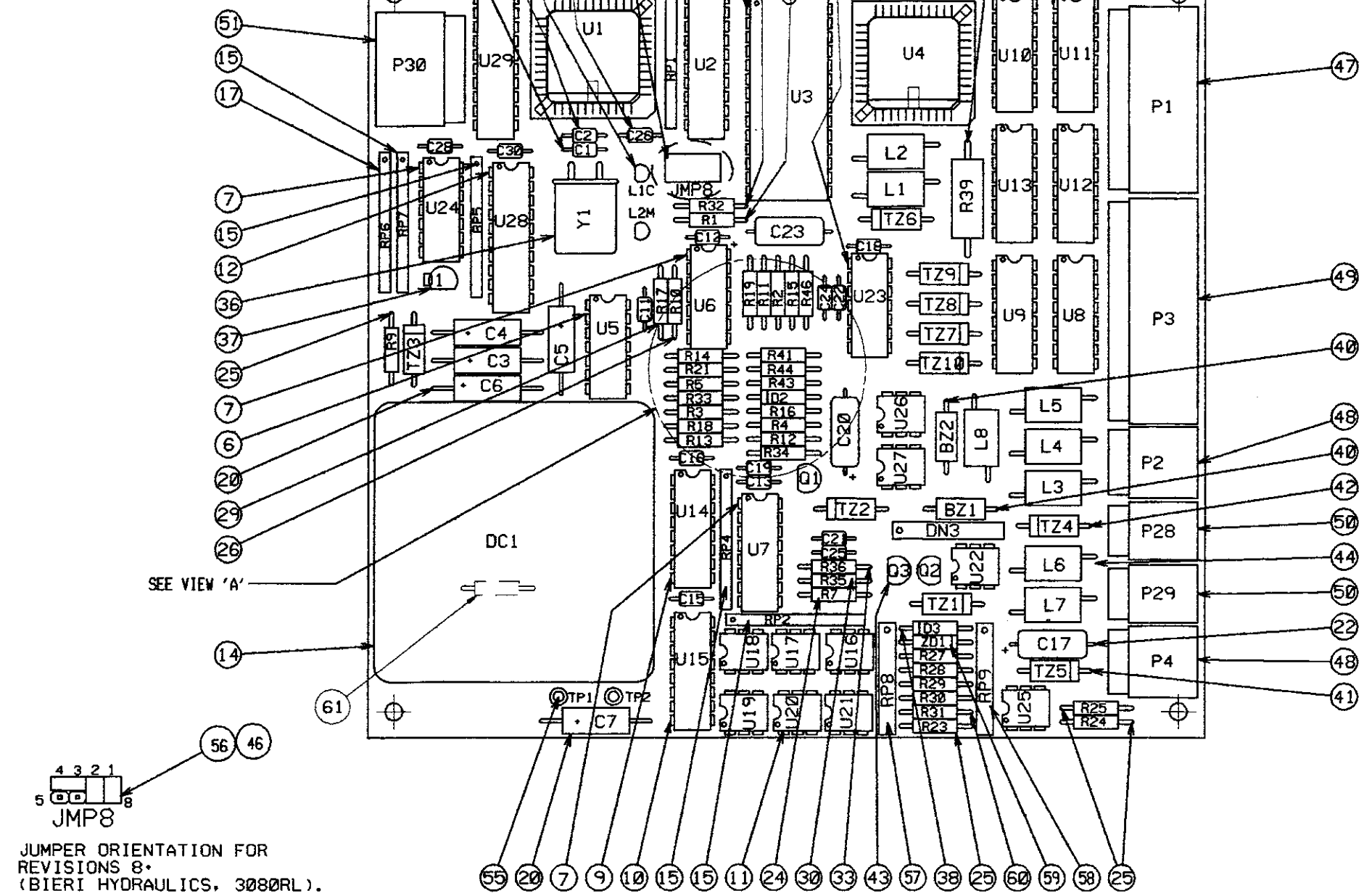
AMERICAN STERILIZER COMPANY
146653-764





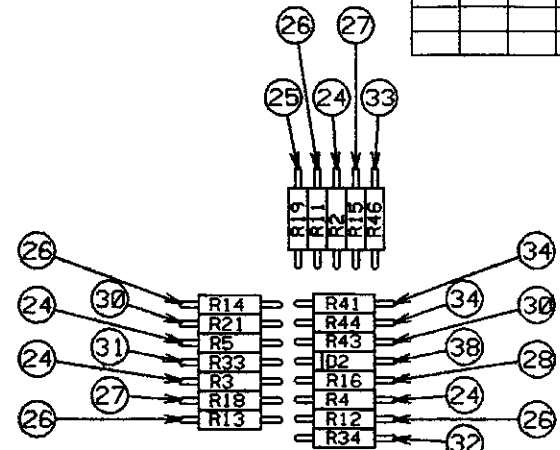
JUMPER ORIENTATION FOR REVISIONS 0 THRU 7 (3080RL WITH PARKER/BRUNING HYDRAULICS AND 3080RC) AND FACTORY TEST, AND FACTORY SET.

VIEW AA



JUMPER ORIENTATION FOR REVISIONS 8+ (BIERI HYDRAULICS, 3080RL).


VIEW AA-1



VIEW 'A'

QUANTITY	PART NUMBER	ITEM NO.	PART NAME	DESCRIPTION, MATERIAL	REV. NO.	REVISION DATE
1	146655-473	1	TABLE CONTROL	BOARD ASS'Y.	11	05/25/94
1		2	CPU			
1		3	LATCH			
1		4	EPROM, DUAL PROG.			
1		5	I/O EXPANDER			
1		6	SMITTER/RECEIVER			
4		7	QUAD COMPARATOR			
6		8	DARLINGTON SWITCH			
1		9	8 BIT ENCODER			
1		10	HEX INVERTER			
10		11	OPTO-ISOLATOR			
1		12	BUFFER			
1		13	FLIP FLOP			
1		14	CONVERTER			
4		15	RESISTOR NETWORK			
1		16	TABLE CONTROL			
1		17	RESISTOR NETWORK			
1		18	CAPACITOR			
1		19	CAPACITOR			
5		20	CAPACITOR			
18		21	CAPACITOR			
3		22	CAPACITOR			
1		23	CAPACITOR			
6		24	RESISTOR			
5		25	RESISTOR			
5		26	RESISTOR			
2		27	RESISTOR			
1		28	RESISTOR			
1		29	RESISTOR			
3		30	RESISTOR			
2		31	RESISTOR			
1		32	RESISTOR			
2		33	RESISTOR			
2		34	RESISTOR			
1		35	RESISTOR			
1		36	CRYSTAL			
1		37	DIODE			
2		38	DIODE			
1		39	DIODE NETWORK			
2		40	ZENER			
9		41	ZENER			
1		42	ZENER			
3		43	TRANSISTOR			
8		44	SHIELD BEAD			
		45				
1		46	CONNECTOR			
1		47	CONNECTOR			
2		48	CONNECTOR			
1		49	CONNECTOR			
2		50	CONNECTOR			
1		51	CONNECTOR			
1		52	SOCKET			
2		53	SOCKET			
2		54	L.E.D.			
2		55	TERMINAL			
3		56	SHUNT			
1		57	RESISTOR NETWORK			
1		58	RESISTOR NETWORK			
1		59	ZENER			
5		60	RESISTOR			
1		61	FUSE, .5A			
1		62	RESISTOR NETWORK			

REV.	DATE	BY	CHK.	DESCRIPTION
3	10-11-89	RA*64	7	06-30-92 924139 11 05/25/94 944152
2	09-06-89	RA*25	6	04-05-91 914099 10 03/23/94 944073
1	8-3-89	RA*22	5	11-12-90 904255 9 08-16-93 934133
0	7-12-89	PER*4	4	10-11-89 904212 8 02-22-93 934026



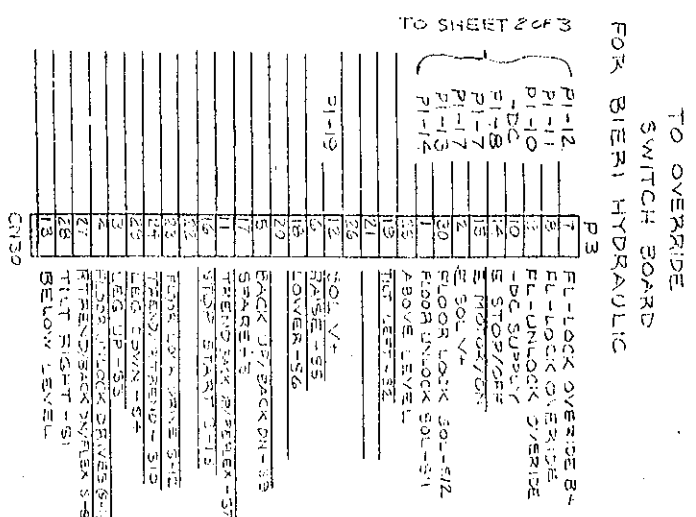
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ERIE, PENNSYLVANIA
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DATE 8-25-89 DATE 7-14-89 DATE 7-17-89

TITLE
TABLE CONTROL
BOARD ASS'Y.
FIRST MADE FOR: 146655-481

DWG. NO. 146655-473 1 SHEET OF 4

SCALE 2/1



P-146655-473
Rev. 11 / 5-24-94

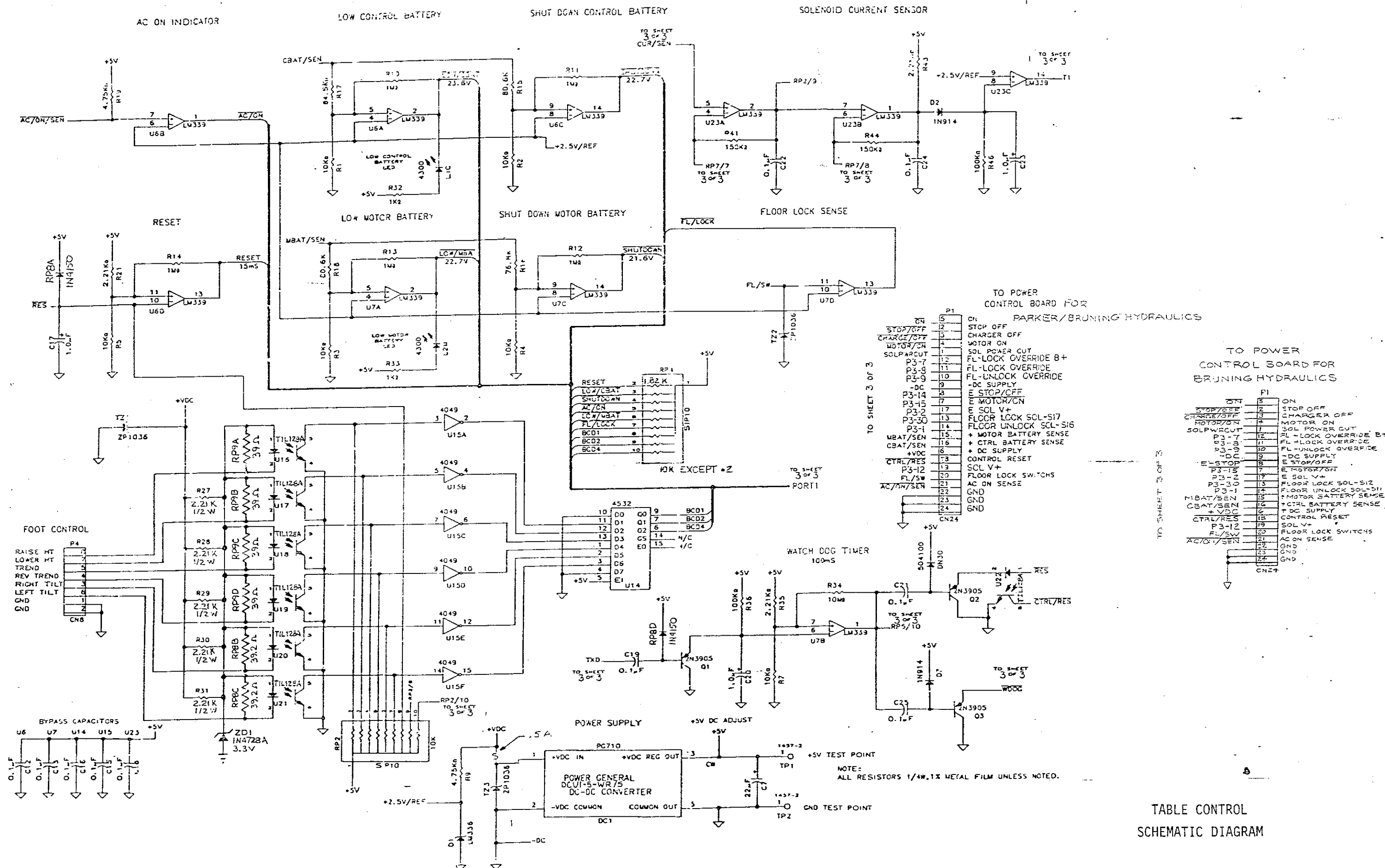
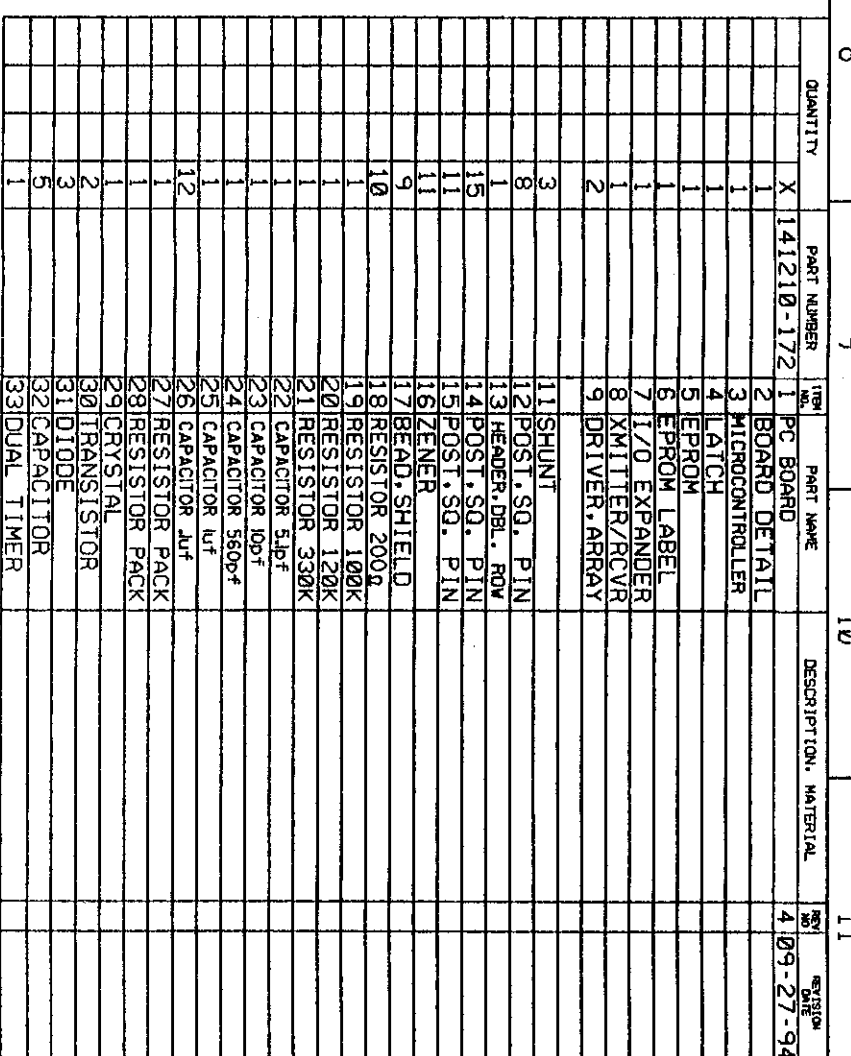
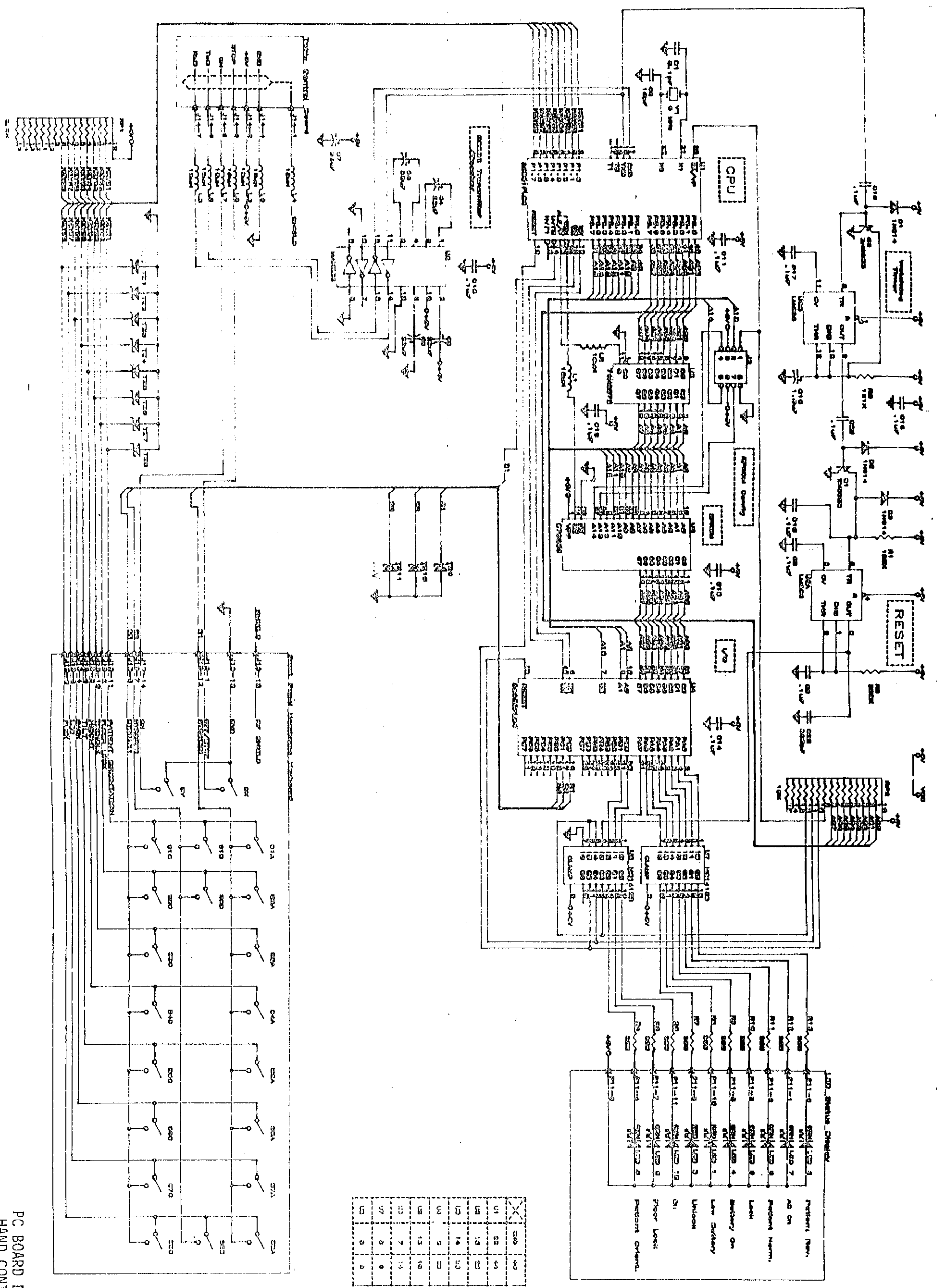


TABLE CONTROL
SCHEMATIC DIAGRAM

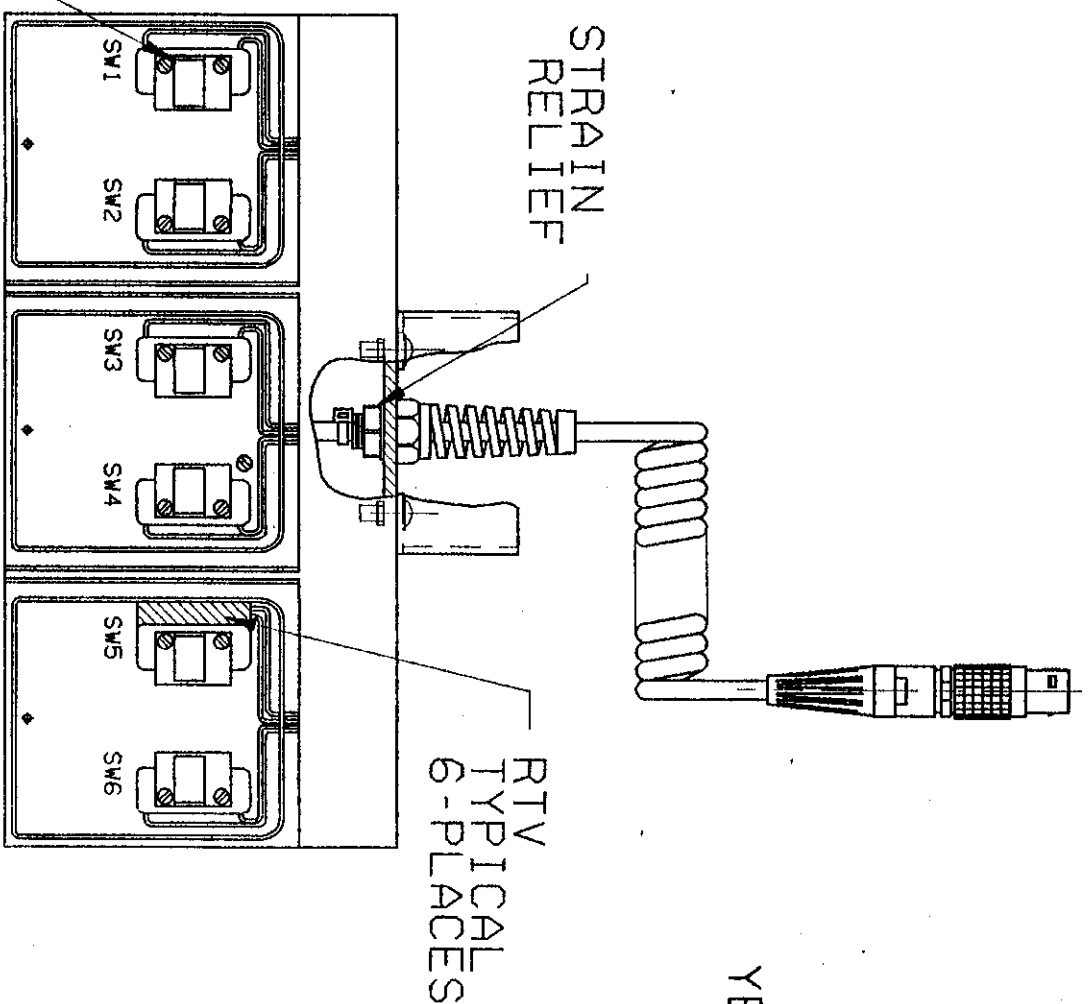


CAD DWG.

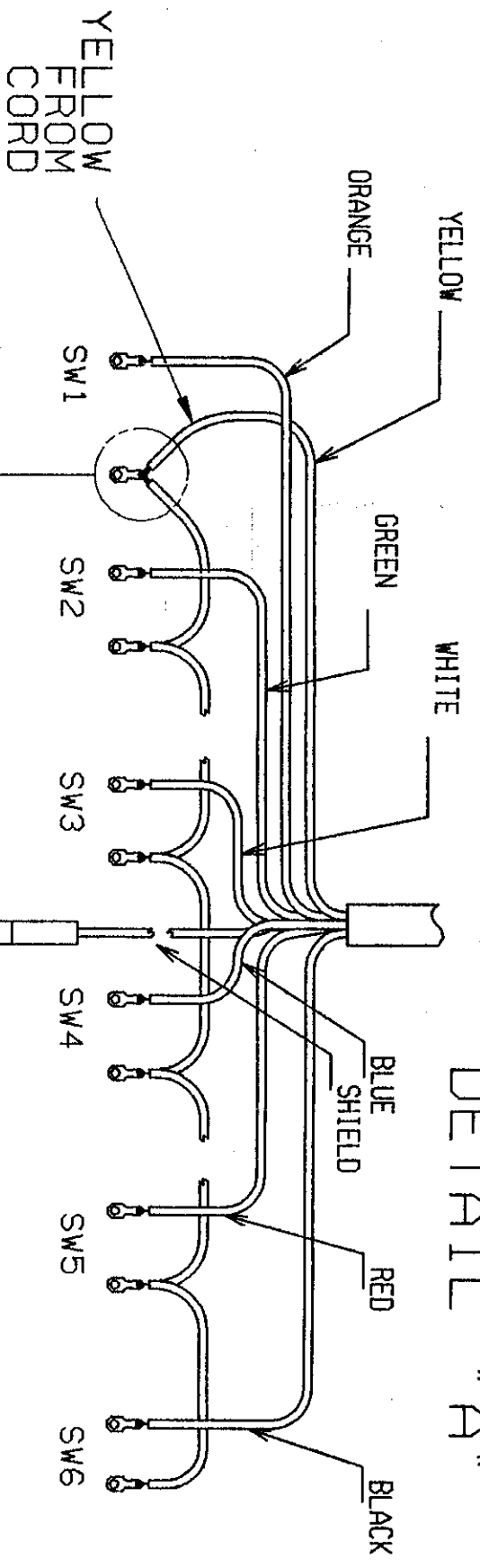
SCALE $\frac{2}{1}$



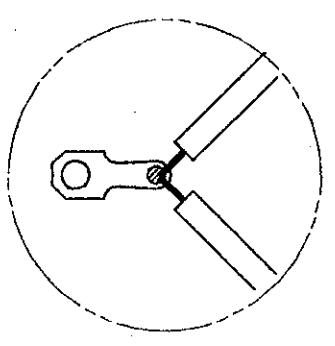
PC BOARD DETAIL
HAND CONTROL
POST "92"



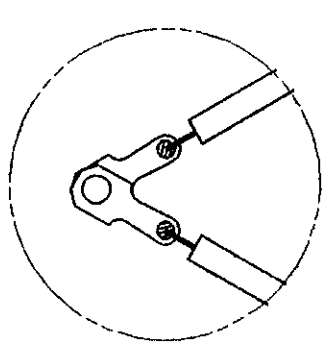
SEE DETAIL "A"
FOR WIRE LOCATIONS



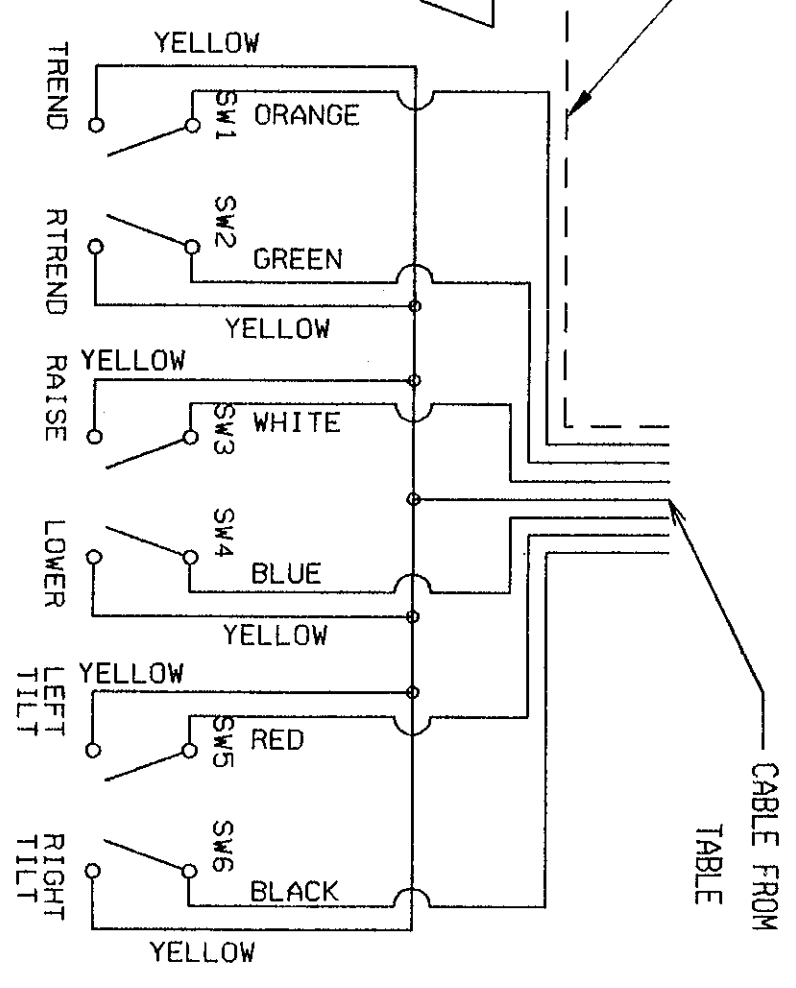
DETAIL "A"



OR



WIRING SCHEMATIC

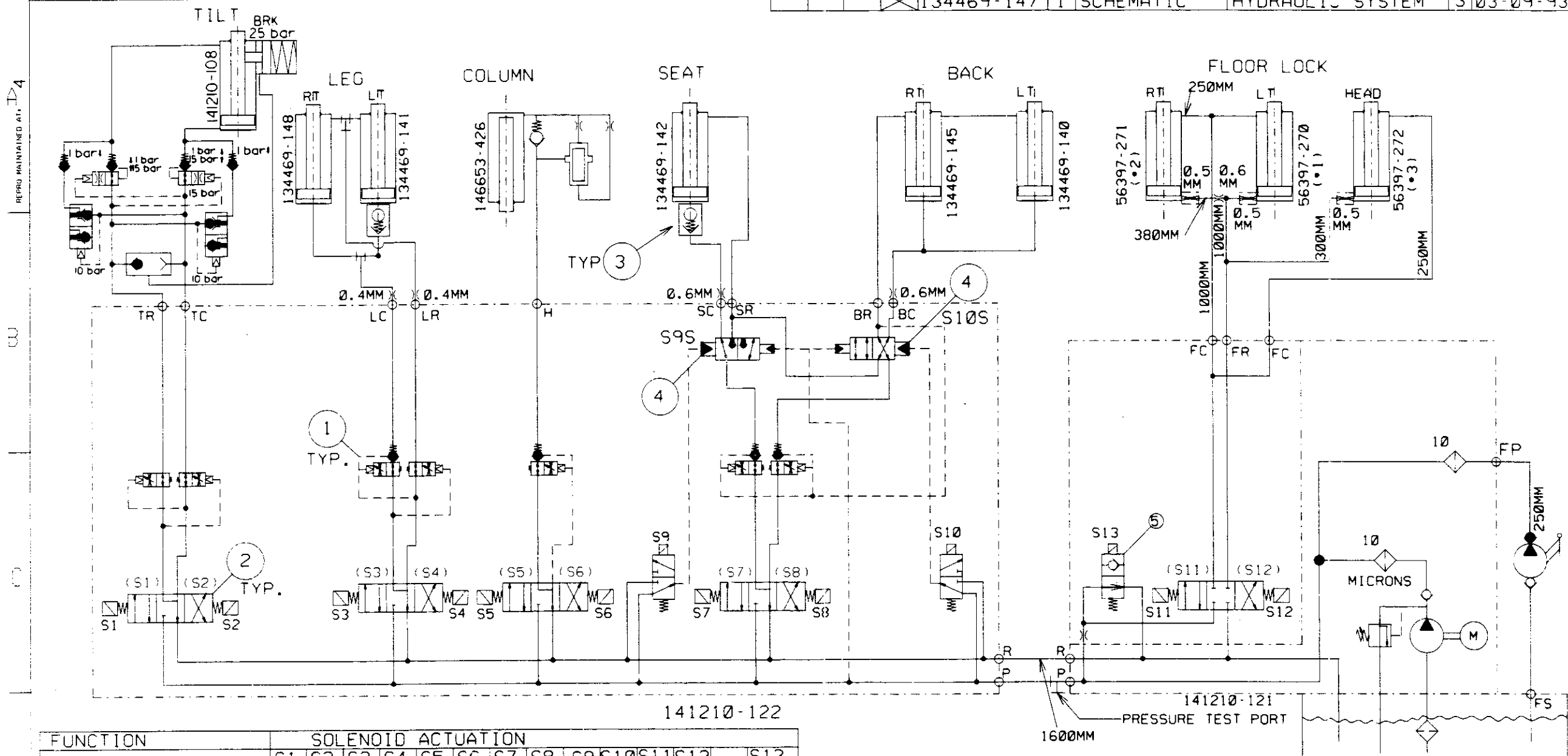


INSTRUCTIONS, CORD
REPLACEMENT FOR
FOOT CONTROL

P/N 755716-207

PAGE 4 OF 4

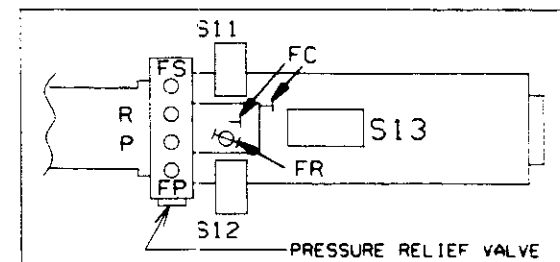
REV. 0 DATE 12/08/93



FUNCTION	SOLENOID ACTUATION												
	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13
1 LEFT TILT	/												/
2 RIGHT TILT		/											/
3 LEG UP			/										/
4 LEG DOWN				/									/
5 RAISE					/								/
6 LOWER						/							/
7 FLEX							/						/
8 REFLEX								/					/
9 TRENDLENBERG							/			/			/
10 R TRENDLENBERG								/		/			/
11 BACK UP							/		/				/
12 BACK DOWN								/	/				/
13 LOCK DISENGAGE										/			/
14 LOCK ENGAGE											/		/

- 1 LOWERING BRAKE CHECK VALVE MODULE
- 2 DIRECTIONAL VALVES. □ IS ELECTRO MAGNET OPERATOR. ALL VALVES SHOWN NOT ACTUATED.
- 3 FLOW FUSE VALVE
- 4 DIRECTIONAL VALVE LEAK-FREE. (SLAVE TO S9 OR S10)
- 5 START STOP VALVE

NOTE: REF. H. BIERI AG
DWG. 42890-S98



NO.	DATE	REVISION	E.C.A. NUMBER	NO.	DATE	REVISION	E.C.A. NUMBER
3	03-09-93	934040					
2	07-10-92	924156					
1	06-07-91	914148					
0	06-19-90	904227					

ALLGEMEINTOLERANZEN DIN 7168	
LANGENMASSE	
RUNDUNGEN, FASEN	
WINKEL	
GERADHEIT, EBENHEIT	
SYMMETRIE	
RUNDLAUF, PLANLAUF	

S9		S10	
S8		S7	
S3		S4	
S1		S2	
S5		S6	

AMERICAN STERILIZER COMPANY
ERIE, PENNSYLVANIA

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DATE 10-24-90 DATE 10-24-90 DATE 10-24-90

TITLE SCHEMATIC, HYDRAULIC SYSTEM

FIRST MADE FOR:

DWG. NO. 134469-147

1 SHEET OF 1